

# FLOOD INSURANCE STUDY



## KING COUNTY, WASHINGTON AND INCORPORATED AREAS



Volume 2 of 5

COMMUNITY NAME	COMMUNITY NUMBER	COMMUNITY NAME	COMMUNITY NUMBER
*ALGONA, CITY OF	530072	*MEDINA, CITY OF	530315
AUBURN, CITY OF	530073	*MERCER ISLAND, CITY OF	530083
*BEAUX ARTS VILLAGE, TOWN OF	530242	NEWCASTLE, CITY OF	530134
BELLEVUE, CITY OF	530074	NORMANDY PARK, CITY OF	530084
BLACK DIAMOND, CITY OF	530272	NORTH BEND, CITY OF	530085
BOTHELL, CITY OF	530075	PACIFIC, CITY OF	530086
BURIEN, CITY OF	530321	REDMOND, CITY OF	530087
CARNATION, CITY OF	530076	RENTON, CITY OF	530088
*CLYDE HILL, CITY OF	530279	SAMMAMISH, CITY OF	530337
COVINGTON, CITY OF	530339	SEATAC, CITY OF	590320
DES MOINES, CITY OF	530077	SEATTLE, CITY OF	530089
DUVALL, CITY OF	530282	SHORELINE, CITY OF	530327
ENUMCLAW, CITY OF	530319	SKYKOMISH, TOWN OF	530236
FEDERAL WAY, CITY OF	530322	SNOQUALMIE, CITY OF	530090
*HUNTS POINT, TOWN OF	530288	SNOQUALMIE INDIAN TRIBE	530066
ISSAQUAH, CITY OF	530079	TUKWILA, CITY OF	530091
KENMORE, CITY OF	530336	WOODINVILLE, CITY OF	530324
KENT, CITY OF	530080	*YARROW POINT, TOWN OF	530309
KIRKLAND, CITY OF	530081	KING COUNTY, UNINCORPORATED AREAS	530071
LAKE FOREST PARK, CITY OF	530082		
MAPLE VALLEY, CITY OF	530078		

\*NON-FLOODPRONE COMMUNITIES



## Federal Emergency Management Agency

Flood Insurance Study Number

53033CV001B

## **NOTICE TO FLOOD INSURANCE STUDY USERS**

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS by a Letter of Map Revision process, which does not involve republication or redistribution of the FIS. Therefore, users should consult with community officials and to check the community repository to obtain the most current FIS report components.

This FIS report was revised on (add effective date). Users should refer to Section 10.0, Revisions Descriptions, for further information. Section 10.0 is intended to present the most up-to-date information for specific portions of this FIS report. Therefore, users of this FIS report should be aware that the information presented in Section 10.0 may supersede information in Sections 1.0 through 9.0 of this FIS report.

Effective Date: May 16, 1995

Revised Dates: September 1991

May 16, 1995

May 20, 1996

March 30, 1998

December 6, 2001

April 19, 2005

## **TABLE OF CONTENTS**

	<b><u>Page</u></b>
1.0 INTRODUCTION	1
1.1 Purpose of Study	1
1.2 Authority and Acknowledgements	1
1.3 Coordination	5
2.0 AREA STUDIED	18
2.1 Scope of Study	18
2.2 Community Description	29
2.3 Principal Flood Problems	34
2.4 Flood Protection Measures	50
3.0 ENGINEERING METHODS	55
3.1 Hydrologic Analyses	56
3.2 Hydraulic Analyses	74
3.3 Vertical Datum	130
4.0 FLOODPLAIN MANAGEMENT APPLICATIONS	133
4.1 Floodplain Boundaries	133
4.2 Floodways	134
5.0 INSURANCE APPLICATION	229
6.0 FLOOD INSURANCE RATE MAP	231
7.0 OTHER STUDIES	231
8.0 LOCATION OF DATA	231
9.0 BIBLIOGRAPHY AND REFERENCES	247
10.0 REVISION DESCRIPTIONS	247
10.1 First Revision	247
10.2 Second Revision	247
10.3 Third Revision	249
10.4 Fourth Revision	249
10.5 Fifth Revision	249
10.6 Sixth Revision	250
10.7 Seventh Revision	250
10.8 Eighth Revision	251

## **TABLE OF CONTENTS (Continued)**

### **FIGURES**

Figure 1 – Floodway Schematic	229
-------------------------------	-----

### **TABLES**

Table 1 – Summary of Discharges	76
Table 2 – Summary of Elevations	88
Table 3 – Mannings “n” Values	128
Table 4 – Datum Conversion Factors	131
Table 5 – Floodway Data	135
Table 6 – Community Map History	232

### **EXHIBITS**

Exhibit 1 – Flood Profiles	
----------------------------	--

Bear Creek	Panels 01P-10P
Bear Creek Overflow Channel	Panels 11P
Big Soos Creek	Panels 12P-21P
Black River	Panels 22P
Cedar River	Panels 23P-35P
Cedar River – Highway 169 Overtopping	Panels 36P
Cedar River – Maplewood Golf Course	Panels 37P
Cedar River – Maplewood Overflow	Panels 38P
Cherry Creek	Panels 39P
Coal Creek	Panels 40P-43P
Des Moines Creek	Panels 44P
East Branch of West Tributary Kelsey Creek	Panels 45P-48P
East Fork Issaquah Creek	Panels 49P-51P
Evans Creek	Panels 52P-53P
Forbes Creek	Panels 54P-58P
Gardiner Creek	Panels 59P
Gilman Boulevard Overflow Issaquah Creek	Panels 60P
Green River (With Levees)	Panels 61P-69P
Green River (Without Levees)	Panels 70P-86P
Holder Creek	Panels 87P
Issaquah Creek	Panels 88P-95P
Kelsey Creek	Panels 96P-109P
Little Bear Creek	Panels 110P-111P

## **TABLE OF CONTENTS (Continued)**

Longfellow Creek	Panels 112P-116P
Lower Overflow	Panels 117P
Lyon Creek	Panels 118P-119P
Maloney Creek	Panels 120P
May Creek	Panels 121P-126P
May Creek Tributary	Panels 127P
McAleer Creek	Panels 128P-129P
Mercer Creek	Panels 130P-131P
Meydenbauer Creek	Panels 132P-133P
Middle Fork Snoqualmie River	Panels 134P-139P
Middle Overflow	Panels 140P
Mill Creek (Auburn)	Panels 141P-146P
Mill Creek (Kent)	Panels 147P-151P
Miller Creek	Panels 152P-155P
North Branch Mercer Creek (North Valley)	Panels 156P-160P
North Creek	Panels 161P-162P
North Fork Issaquah Creek	Panels 163P
North Fork Meydenbauer Creek	Panels 164P
North Fork Snoqualmie River	Panels 165P-166P
North Fork Thornton Creek	Panels 167P-172P
Patterson Creek	Panels 173P-176P
Patterson Creek Overflow	Panels 177P
Raging River	Panels 178P-185P
Richards Creek	Panels 186P-197P
Richards Creek East Tributary	Panels 198P
Richards Creek West Tributary	Panels 199P
Right Channel Mercer Creek	Panels 200P
Rolling Hills Creek	Panels 201P
Sammamish River	Panels 202P-203P
Snoqualmie River	Panels 204P-221P
Snoqualmie River Overflows:	
Reach 1	Panels 222P-223P
Reach 2	Panels 224P-225P
Reach 3	Panels 226P-227P
Reach 4	Panels 228P
Reach 5	Panels 229P-230P
Reach 6	Panels 231P
South Fork Skykomish River	Panels 232P-242P
South Fork Snoqualmie River (With Levees)	Panels 243P-249P
South Fork Snoqualmie River (Without Levees)	Panels 250P
South Fork Snoqualmie River (Without Left Levee)	Panels 251P-255P
South Fork Snoqualmie River (Without Right Levee)	Panels 256P-260P
South Fork Thornton Creek	Panels 261P-265P

## **TABLE OF CONTENTS (Continued)**

Springbrook Creek	Panels 266P-268P
SW 23 <sup>rd</sup> Street Drainage Channel	Panels 269P
Swamp Creek	Panels 270P-272P
Swamp Creek Overbank	Panels 273P
Thornton Creek	Panels 274P-276P
Tibbetts Creek	Panels 277P-280P
Tolt River	Panels 281P-282P
Tolt River (With Levees)	Panels 283P-285P
Tolt River (Without Left Levee)	Panels 286P
Tolt River (Without Right Levee)	Panels 287P
Upper North Overflow	Panels 288P
Upper South Overflow	Panels 289P
Vasa Creek	Panels 290P
Walker Creek	Panels 291P
West Fork Issaquah Creek	Panels 292P-293P
West Tributary Kelsey Creek	Panels 294P-300P
White River	Panels 301P-302P
White River (Left Bank Overflow)	Panels 303P
Yarrow Creek	Panels 304P-305P

## **PUBLISHED SEPARATELY**

Flood Insurance Rate Map Index

Flood Insurance Rate Map

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
RAGING RIVER								
A	200	436	1,130	6.6	99.1	85.3 <sup>2</sup>	86.3 <sup>4</sup>	1.0
B	698	308	807	9.2	100.1	94.3 <sup>2</sup>	95.3 <sup>2</sup>	1.0
C	1,607	522	1,481	5.0	104.6/105.2/104.1 <sup>3</sup>	102.5 <sup>4</sup>	103.5 <sup>4</sup>	1.0
D	2,183	476	1,075	6.9	107.8/108.0/105.7 <sup>3</sup>	105.6 <sup>4</sup>	106.6 <sup>4</sup>	1.0
E	2,667	164	926	8.0	112.4/114.2/112.4 <sup>3</sup>	112.4 <sup>4</sup>	112.4 <sup>4</sup>	0.0
F	3,000	242	835	8.9	114.6/114.7/115.0 <sup>3</sup>	114.6 <sup>4</sup>	114.6 <sup>4</sup>	0.0
G	3,519	87	653	11.4	117.6/119.4/118.5 <sup>3</sup>	117.4 <sup>4</sup>	118.4 <sup>4</sup>	1.0
H	3,935	116	693	10.7	122.1/122.4/121.7 <sup>3</sup>	121.8 <sup>4</sup>	122.3 <sup>4</sup>	0.5
I	4,447	122	891	8.3	125.9/125.8/126.2 <sup>3</sup>	125.9 <sup>4</sup>	126.3 <sup>4</sup>	0.4
J	5,117	135	695	10.7	131.3/131.5/131.5 <sup>3</sup>	131.2 <sup>4</sup>	131.5 <sup>4</sup>	0.3
K	5,498	134	751	9.9	135.9/135.8/135.7 <sup>3</sup>	135.8 <sup>4</sup>	135.8 <sup>4</sup>	0.0
L	5,868	95	571	13.0	139.5/139.5/139.6 <sup>3</sup>	139.5 <sup>4</sup>	139.5 <sup>4</sup>	0.0
M	6,372	105	742	10.0	145.6/145.6/145.5 <sup>3</sup>	145.5 <sup>4</sup>	145.5 <sup>4</sup>	0.0
N	6,824	92	576	12.9	150.4/150.4/150.3 <sup>3</sup>	150.3 <sup>4</sup>	150.3 <sup>4</sup>	0.0
O	7,388	77	575	12.9	159.1/159.1/159.2 <sup>3</sup>	159.1 <sup>4</sup>	159.1 <sup>4</sup>	0.0
P	7,720	97	623	11.9	163.5/163.5/163.5 <sup>3</sup>	163.5 <sup>4</sup>	163.5 <sup>4</sup>	0.0
Q	8,246	98	700	10.6	169.9	169.9	170.2	0.3
R	8,746	86	592	12.5	175.2	175.2	175.2	0.0
S	9,301	86	595	12.5	182.0	182.0	182.9	0.9
T	9,804	283	1,616	4.6	187.0	187.0	188.0	1.0
U	10,373	133	641	11.6	193.0	193.0	193.1	0.1
V	10,697	113	657	11.3	196.6	196.6	197.5	0.9
W	11,106	122	1,332	5.6	207.6	207.6	208.0	0.4
X	11,594	97	648	11.4	209.5	209.5	209.7	0.2
Y	12,122	67	487	15.2	216.5	216.5	216.5	0.0
Z	12,723	140	858	8.6	226.9	226.9	226.9	0.0

<sup>1</sup>Feet Above Confluence With Snoqualmie River

<sup>2</sup>Elevations Computed Without Consideration of Influence from Snoqualmie River

<sup>3</sup>Landward of Left Levee/Riverward of Levees/Landward of Right Levee

<sup>4</sup>Elevations Computed Without Consideration of Levees

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**RAGING RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
RAGING RIVER								
AA	13,162	81	516	14.4	234.2	234.2	234.2	0.0
AB	13,767	96	821	9.0	246.4	246.4	246.4	0.0
AC	14,171	123	620	12.0	251.8	251.8	251.9	0.1
AD	14,636	119	1,099	6.3	262.2	262.2	262.3	0.1
AE	15,177	96	658	10.6	265.5	265.5	265.8	0.3
AF	15,862	77	484	14.4	277.5	277.5	278.0	0.5
AG	16,532	90	663	10.5	289.5	289.5	290.5	1.0
AH	16,958	104	540	12.9	298.1	298.1	298.1	0.0
AI	17,808	177	747	9.3	317.0	317.0	317.1	0.1
AJ	18,647	95	650	10.7	329.7	329.7	329.7	0.0
AK	19,379	121	776	9.0	338.4	338.4	339.3	0.9
AL	20,267	84	595	11.7	350.0	350.0	351.0	1.0
AM	20,827	137	770	9.1	358.4	358.4	359.2	0.8
AN	21,506	97	631	11.0	366.8	366.8	367.8	1.0
AO	22,376	103	705	9.9	378.2	378.2	379.2	1.0
AP	23,127	185	907	7.7	385.3	385.3	386.3	1.0
AQ	23,828	101	683	10.2	397.4	397.4	397.4	0.0
AR	24,406	100	564	12.4	404.5	404.5	404.7	0.2
AS	24,950	115	639	10.9	415.6	415.6	416.0	0.4
AT	25,526	133	816	8.5	423.6	423.6	423.6	0.0
AU	25,983	79	471	12.7	429.0	429.0	429.0	0.0
AV	26,586	272	845	7.1	437.4	437.4	437.6	0.2
AW	27,197	150	666	9.0	444.4	444.4	444.7	0.3
AX	27,733	93	556	10.8	452.5	452.5	452.6	0.1
AY	28,479	168	789	7.6	462.7	462.7	463.1	0.4
AZ	28,950	87	459	13.1	471.2	471.2	471.2	0.0

<sup>1</sup>Feet Above Confluence With Snoqualmie River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**RAGING RIVER**



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
RAGING RIVER								
BA	29,643	73	592	10.2	483.4	483.4	484.1	0.7
BB	30,343	137	586	10.3	493.2	493.2	494.1	0.9
BC	31,163	176	751	8.0	508.3	508.3	509.3	1.0
BD	31,933	291	730	8.2	517.7	517.7	518.6	0.9
BE	32,803	261	1,211	5.0	530.4	530.4	531.3	0.9
BF	33,643	162	656	9.2	539.7	539.7	539.8	0.1
BG	34,413	149	932	5.2	548.6	548.6	549.6	1.0
BH	35,233	123	470	10.4	558.5	558.5	558.5	0.0
BI	36,443	164	777	6.3	574.9	574.9	575.9	1.0
BJ	37,183	131	514	9.5	585.8	585.8	586.4	0.6
BK	38,043	78	592	8.2	598.9	598.9	599.4	0.5
BL	38,643	105	454	10.7	608.6	608.6	608.6	0.0
BM	39,273	101	522	9.3	618.5	618.5	619.2	0.7
BN	39,473	113	625	7.8	622.3	622.3	622.8	0.5
BO	39,583	96	618	7.9	623.7	623.7	624.3	0.6
BP	40,003	80	450	10.8	629.3	629.3	629.3	0.0
BQ	40,663	97	604	8.1	638.3	638.3	639.2	0.9
BR	41,083	117	383	8.9	645.7	645.7	645.8	0.1
BS	41,283	212	766	4.4	649.7	649.7	650.7	1.0
BT	41,348	216	987	3.5	650.8	650.8	651.4	0.6
BU	42,043	84	313	10.9	657.8	657.8	657.8	0.0
BV	42,493	58	394	8.6	666.9	666.9	667.8	0.9
BW	43,123	86	413	8.3	676.7	676.7	677.4	0.7

<sup>1</sup>Feet Above Confluence With Snoqualmie River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**RAGING RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SAMMAMISH RIVER								
A	0.25	80	803	4.8	18.6	18.6	18.6	0.0
B	1.10	45	1,007	3.5	21.1	21.1	21.1	0.0
C	1.30	45	954	3.7	21.8	21.8	21.8	0.0
D	1.78	128	1,081	3.2	22.7	22.7	22.8	0.1
E	2.44	132	1,214	2.9	23.8	23.8	23.8	0.0
F	2.79	130	1,253	2.6	24.3	24.3	24.3	0.0
G	3.52	144	1,303	2.7	25.1	25.1	25.1	0.0
H	3.92	138	1,196	2.9	25.6	25.6	25.6	0.0
I	4.90	85	1,179	2.7	26.7	26.7	26.7	0.0
J	5.50	50	1,093	2.9	27.4	27.4	27.4	0.0
K	6.05	50	1,068	2.8	28.0	28.0	28.0	0.0
L	6.30	40	1,111	2.7	28.4	28.4	28.4	0.0
M	7.00	40	1,041	2.9	29.2	29.2	29.2	0.0
N	7.35	55	1,144	2.6	29.6	29.6	29.6	0.0
O	7.70	45	1,159	2.6	30.0	30.0	30.0	0.0
P	8.30	40	1,141	2.6	30.6	30.6	30.6	0.0
Q	9.20	45	1,123	2.6	31.4	31.4	31.4	0.0
R	9.30	45	1,094	2.7	31.7	31.7	31.9	0.2
S	10.68	45	1,184	2.5	31.9	31.9	32.3	0.4
T	10.99	70	1,096	2.7	32.2	32.2	32.6	0.4
U	11.80	75	1,111	2.6	33.2	33.2	33.4	0.2
V	12.79	60	1,102	2.6	34.2	34.2	34.4	0.2
W	13.05	60	1,060	2.7	34.5	34.5	34.7	0.2
X	13.28	80	1,133	2.5	34.7	34.7	34.9	0.2
Y	13.70	60	1,196	1.9	35.2	35.2	35.4	0.2
Z	14.15	50	1,180	1.9	35.4	35.4	35.6	0.2

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SAMMAMISH RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SAMMAMISH RIVER								
AA	14.35	180	2,472	0.9	35.6	35.6	35.7	0.1
AB	14.65	150	1,891	1.2	35.6	35.6	35.8	0.2
AC	14.95	120	1,977	1.3	35.8	35.8	36.0	0.2

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

FLOODWAY DATA

SAMMAMISH RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
A	898	2,854	58,465	3.5	46.6	46.6	47.3	0.7
B	1,162	3,011	60,876	3.3	46.7	46.7	47.4	0.7
C	2,165	3,559	58,756	3.5	46.9	46.9	47.5	0.6
D	3,643	4,464	70,101	2.9	47.2	47.2	47.9	0.7
E	4,699	4,858	66,634	3.1	47.5	47.6	48.1	0.5
F	5,702	4,971	74,139	2.7	48.0	48.0	48.6	0.6
G	6,917	5,315	76,550	2.7	48.3	48.4	48.9	0.5
H	7,973	6,724	87,358	2.3	48.7	48.6	49.3	0.7
I	8,765	8,177	94,968	1.9	48.8	48.9	49.4	0.5
J	9,398	4,110	64,973	1.6	48.9	48.9	49.5	0.6
K	10,190	3,670	58,838	1.5	49.0	49.0	49.6	0.6
L	11,458	3,410	59,078	1.5	49.1	49.1	49.7	0.6
M	11,510	3,572	58,645	1.5	49.1	49.1	49.7	0.6
N	12,250	3,500	67,909	1.3	49.1	49.1	49.8	0.7
O	13,411	3,255	65,784	1.3	49.1	49.1	49.8	0.7
P	14,414	3,668	77,212	1.1	49.2	49.2	49.9	0.7
Q	15,523	3,922	75,837	1.1	49.2	49.2	50.0	0.8
R	17,266	4,187	76,029	1.1	49.2	49.2	50.0	0.8
S	18,427	4,756	77,343	1.1	49.2	49.2	50.0	0.8
T	20,117	4,961	92,162	0.9	49.3	49.3	50.1	0.8
U	21,278	5,224	99,556	0.9	49.4	49.4	50.2	0.8
V	22,598	5,480	110,739	0.8	49.4	49.4	50.2	0.8
W	23,813	6,204	125,890	0.7	49.4	49.4	50.2	0.8
X	24,605	7,066	135,928	0.6	49.5	49.5	50.3	0.8
Y	25,766	7,788	156,260	0.6	49.5	49.5	50.3	0.8
Z	27,350	8,597	162,192	0.5	49.5	49.5	50.3	0.8

<sup>1</sup>Feet Above Confluence with Skykomish River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SNOQUALMIE RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
AA	29,093	8,349	154,290	0.6	49.5	49.5	50.3	0.8
AB	30,307	9,736	176,349	0.5	49.5	49.5	50.4	0.8
AC	31,522	10,718	195,325	0.4	49.6	49.6	50.4	0.8
AD	33,317	10,258	190,328	0.5	49.6	49.6	50.4	0.8
AE	34,901	9,136	156,198	0.6	49.6	49.6	50.4	0.8
AF	36,485	8,197	133,337	0.7	49.6	49.6	50.4	0.8
AG	37,541	7,422	118,796	0.7	49.6	49.6	50.4	0.8
AH	38,597	7,035	108,917	0.8	49.6	49.6	50.5	0.8
AI	40,498	6,326	86,420	1.0	49.7	49.7	50.5	0.9
AJ	43,666	5,713	78,894	1.1	49.8	49.8	50.7	0.9
AK	45,144	4,774	69,808	1.2	49.9	49.9	50.8	0.9
AL	46,411	4,212	64,054	1.4	50.1	50.1	51.0	0.9
AM	47,520	4,366	58,375	1.5	50.2	50.2	51.0	0.9
AN	48,418	4,268	29,814	2.9	50.4	50.4	51.3	0.8
AO	48,523	4,270	30,148	2.9	50.6	50.6	51.4	0.8
AP	49,632	4,610	56,052	1.6	51.1	51.1	51.8	0.7
AQ	50,424	4,619	64,587	1.3	51.4	51.4	52.0	0.7
AR	51,480	4,706	66,796	1.3	51.4	51.4	52.1	0.7
AS	52,219	4,920	72,265	1.2	51.6	51.6	52.3	0.7
AT	52,906	4,710	64,175	0.3	51.6	51.6	52.3	0.7
AU	NA	NA	NA	NA	NA	NA	NA	NA
AV	NA	NA	NA	NA	NA	NA	NA	NA
AW	NA	NA	NA	NA	NA	NA	NA	NA
AX	57,658	4,253	61,149	1.4	51.8	51.8	52.5	0.7
AY	58,766	4,468	74,758	1.2	52.0	52.0	52.6	0.7
AZ	59,506	4,598	74,866	1.2	52.0	52.0	52.7	0.7

<sup>1</sup>Feet Above Confluence with Skykomish River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SNOQUALMIE RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
BA	60,562	4,791	68,438	1.3	52.1	52.1	52.8	0.7
BB	62,093	4,750	54,454	1.6	52.2	52.2	52.9	0.7
BC	63,149	4,750	54,346	1.6	52.3	52.3	53.1	0.7
BD	64,416	4,600	55,790	1.6	52.5	52.5	53.2	0.7
BE	65,472	4,600	50,712	1.7	52.6	52.6	53.4	0.8
BF	67,373	4,800	48,509	1.8	52.8	52.8	53.6	0.8
BG	69,432	4,500	42,841	2.1	52.9	52.9	53.7	0.8
BH	70,118	4,400	50,075	1.8	52.9	52.9	53.7	0.8
BI	72,970	4,500	44,665	2.0	53.0	53.0	53.8	0.8
BJ	73,234	4,400	43,230	2.0	53.1	53.1	53.9	0.8
BK	73,392	4,400	43,002	2.1	53.2	53.2	54.0	0.8
BL	74,448	4,250	47,323	1.9	53.4	53.4	54.2	0.8
BM	75,504	3,850	46,678	1.9	53.6	53.6	54.4	0.8
BN	76,560	3,300	36,781	2.4	53.8	53.8	54.5	0.8
BO	77,933	4,150	40,509	2.2	54.2	54.2	55.0	0.8
BP	79,622	4,125	47,041	1.9	54.4	54.4	55.3	0.8
BQ	80,731	4,100	48,073	1.9	54.5	54.5	55.3	0.8
BR	82,526	3,950	43,092	2.1	54.7	54.7	55.5	0.8
BS	83,635	4,100	41,102	2.2	54.9	54.9	55.7	0.8
BT	85,430	4,400	37,981	2.4	55.3	55.3	56.0	0.8
BU	87,014	4,858	41,430	2.2	55.3	55.3	56.0	0.8
BV	88,440	5,928	63,644	1.4	55.6	55.6	56.3	0.8
BW	91,978	6,622	90,166	1.0	55.7	55.7	56.5	0.8
BX	93,086	6,467	70,266	1.3	55.8	55.8	56.6	0.8
BY	94,459	6,166	62,325	1.5	56.2	56.2	56.9	0.7
BZ	96,518	4,546	46,585	1.9	56.7	56.7	57.3	0.6

<sup>1</sup>Feet Above Confluence with Skykomish River

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
CA	98,736	4,109	54,421	1.7	56.7	56.7	57.3	0.6
CB	100,320	4,070	50,855	1.8	56.9	56.9	57.5	0.6
CC	101,904	4,775	38,272	2.4	57.5	57.5	58.2	0.6
CD	103,382	5,076	46,570	2.0	58.6	58.6	59.2	0.6
CE	104,650	5,787	54,725	1.7	58.8	58.8	59.4	0.6
CF	105,970	5,413	48,236	1.9	59.1	59.1	59.7	0.6
CG	107,026	5,117	49,577	1.9	59.4	59.4	60.0	0.6
CH	108,187	4,863	50,654	1.8	59.6	59.6	60.2	0.5
CI	109,349	3,940	39,050	2.4	60.2	60.2	60.7	0.5
CJ	110,510	4,505	45,888	2.0	60.9	60.9	61.3	0.4
CK	112,358	3,906	32,898	2.8	61.6	61.6	62.1	0.5
CL	NA	NA	NA	NA	NA	NA	NA	NA
CM	114,629	5,106	29,919	3.1	63.6	63.6	64.3	0.7
CN	115,474	4,734	30,002	3.1	64.2	64.2	65.0	0.8
CO	115,579	4,658	42,349	2.2	67.9	67.9	68.7	0.9
CP	115,790	4,720	43,334	2.2	67.9	67.9	68.8	0.9
CQ	116,635	4,717	38,422	2.4	68.0	68.0	68.9	0.9
CR	117,586	4,683	38,205	2.5	68.3	68.3	69.2	0.8
CS	118,536	4,060	29,580	3.2	68.6	68.6	69.4	0.8
CT	119,909	2,603	24,994	3.8	69.8	69.8	70.6	0.8
CU	120,595	1,950	21,178	4.4	71.0	71.0	71.9	0.8
CV	121,440	1,900	19,049	4.9	72.7	72.7	73.5	0.8
CW	122,549	1,600	19,665	4.8	74.2	74.2	75.2	1.0
CX	124,133	1,800	17,744	5.3	76.0	76.0	76.8	0.9
CY	124,661	1,797	20,165	4.7	76.9	76.9	77.6	0.7
CZ	125,136	1,788	20,620	4.1	77.7	77.7	78.5	0.8

<sup>1</sup>Feet Above Confluence with Skykomish River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SNOQUALMIE RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
DA	125,400	1,600	18,131	4.7	78.0	78.0	78.8	0.8
DB	125,611	1,700	17,592	4.8	77.8	77.8	78.6	0.8
DC	126,086	2,100	29,527	2.9	78.5	78.5	79.3	0.7
DD	126,192	2,096	33,692	2.5	79.2	79.2	79.9	0.7
DE	127,090	2,019	34,950	2.4	79.2	79.2	79.9	0.7
DF	128,146	3,214	49,109	1.8	79.3	79.3	80.1	0.7
DG	129,413	3,971	58,998	0.4	79.5	79.5	80.3	0.8
DH	130,680	1,972	35,290	1.0	79.5	79.5	80.3	0.8
DI	133,003	5,376	75,091	1.1	79.5	79.5	80.3	0.8
DJ	134,798	5,305	75,353	1.1	79.5	79.5	80.3	0.8
DK	135,907	5,322	68,282	1.2	79.6	79.6	80.4	0.8
DL	137,280	5,394	73,289	1.2	79.6	79.6	80.4	0.8
DM	138,283	5,561	66,202	1.3	79.6	79.6	80.4	0.8
DN	140,026	5,120	56,474	1.5	79.8	79.8	80.6	0.8
DO	141,821	4,968	54,718	1.6	80.0	80.0	80.9	0.9
DP	143,352	5,495	58,164	1.4	80.2	80.2	81.2	1.0
DQ	145,200	5,701	59,489	1.4	80.4	80.4	81.4	1.0
DR	146,309	5,373	54,909	1.5	80.6	80.6	81.6	1.0
DS	147,840	5,490	55,823	1.5	80.8	80.8	81.8	1.0
DT	149,213	5,441	53,567	1.6	81.1	81.1	82.1	1.0
DU	150,691	4,890	49,199	1.7	81.4	81.4	82.3	0.9
DV	152,434	5,627	46,924	1.8	81.9	81.9	82.8	0.9
DW	154,334	6,503	48,421	1.8	82.6	82.6	83.6	0.9
DX	160,195	6,871	48,929	1.8	82.9	82.9	83.8	0.9
DY	162,835	4,894	35,989	2.4	83.5	83.5	84.3	0.8
DZ	164,472	4,824	33,599	2.6	84.3	84.3	85.1	0.8

<sup>1</sup>Feet Above Confluence with Skykomish River



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
EA	166,690	4,646	41,293	2.1	85.0	85.0	85.7	0.7
EB	167,218	4,895	48,048	1.8	85.1	85.1	85.9	0.8
EC	167,640	4,903	45,814	1.9	85.2	85.2	86.0	0.8
ED	168,643	5,399	45,622	1.9	85.6	85.6	86.4	0.8
EE	169,699	6,257	60,835	1.4	86.4	86.4	87.4	1.0
EF	171,970	5,104	38,574	1.2	87.6	87.6	88.3	0.8
EG	172,867	4,865	37,390	1.3	88.3	88.3	88.8	0.5
EH	173,818	3,752	25,958	3.4	89.5	89.5	89.8	0.3
EI	174,715	3,395	28,696	3.0	90.7	90.7	91.0	0.3
EJ	176,510	2,839	20,978	4.2	92.5	92.5	92.9	0.4
EK	177,038	2,571	20,961	4.2	93.1	93.1	93.6	0.5
EL	177,989	2,181	17,602	5.0	94.1	94.1	94.8	0.7
EM	178,886	2,296	16,214	5.4	94.9	94.9	95.9	1.0
EN	179,626	1,899	14,126	6.2	96.2	96.2	97.1	0.9
EO	180,259	1,276	15,255	5.7	98.4	98.4	99.1	0.7
EP	180,365	1,267	14,274	6.1	98.8	98.8	99.5	0.7
EQ	180,682	1,249	13,346	6.1	100.3	100.3	100.9	0.6
ER	181,421	1,271	14,349	5.7	101.6	101.6	102.2	0.6
ES	181,843	1,359	15,525	5.3	102.0	102.0	102.4	0.4
ET	183,322	2,085	24,552	3.3	103.2	103.2	104.1	0.9
EU	184,800	2,606	27,882	2.9	103.5	103.5	104.3	0.8
EV	186,014	3,100	34,729	2.4	103.7	103.7	104.5	0.8
EW	186,965	3,448	33,330	2.5	103.8	103.8	104.7	0.8
EX	187,915	2,925	24,543	3.3	104.1	104.1	104.9	0.8
EY	188,813	2,721	26,214	3.1	104.4	104.4	105.2	0.7
EZ	189,922	2,172	19,201	4.3	104.7	104.7	105.4	0.7

<sup>1</sup>Feet Above Confluence with Skykomish River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SNOQUALMIE RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SNOQUALMIE RIVER								
FA	191,083	946	9,806	8.4	106.7	106.7	107.1	0.4
FB	192,350	500	7,968	10.4	110.7	110.7	110.7	0.1
FC	193,248	434	7,724	10.7	112.8	112.8	113.0	0.2
FD	194,304	839	13,812	6.0	115.9	115.9	116.3	0.4
FE	195,466	1,650	21,951	3.8	116.7	116.7	117.2	0.5
FF	196,152	1,700	18,344	4.5	117.0	117.0	117.6	0.5
FG	197,155	846	8,020	10.3	117.2	117.2	117.6	0.4
FH	198,053	300	7,711	10.3	119.7	119.7	120.0	0.4
FI	199,162	360	5,459	14.5	119.5	119.5	119.8	0.3
FJ	199,901	363	7,182	11.0	122.8	122.8	123.1	0.3
FK	201,485	188	3,578	22.1	125.4	125.4	125.7	0.3
FL	40.42 <sup>2</sup>	283	4,593	17.4	416.6	416.6	416.6	0.0
FM	40.66 <sup>2</sup>	568	9,384	8.5	422.9	422.9	422.9	0.0
FN	40.72 <sup>2</sup>	890	13,024	6.1	423.6	423.6	423.6	0.0
FO	40.94 <sup>2</sup>	1,618	17,979	4.4	424.8	424.8	424.8	0.0
FP	41.19 <sup>2</sup>	2,340	16,674	4.8	425.5	425.5	425.5	0.0
FQ	41.34 <sup>2</sup>	2,580	32,581	2.5	425.6	425.6	426.4	0.8
FR	41.68 <sup>2</sup>	4,430	55,281	1.4	426.0	426.0	426.0	0.0
FS	42.00 <sup>2</sup>	5,110	60,389	1.3	426.3	426.3	427.3	1.0
FT	42.19 <sup>2</sup>	5,356	49,249	1.6	426.5	426.5	427.5	1.0
FU	42.51 <sup>2</sup>	4,529	44,191	1.8	427.0	427.0	428.0	1.0
FV	42.80 <sup>2</sup>	4,120	53,662	1.5	427.3	427.3	428.3	1.0
FW	43.06 <sup>2</sup>	3,900	18,226	2.7	427.5	427.5	428.3	0.8
FX	43.39 <sup>2</sup>	3,330	47,273	1.7	428.1	428.1	429.1	1.0
FY	46.67 <sup>2</sup>	3,330	40,111	2.0	428.4	428.4	429.4	1.0

<sup>1</sup>Feet Above Confluence with Skykomish River

<sup>2</sup>Miles Above Confluence with Skykomish River

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK SKYKOMISH RIVER								
A	56.34	1,803	13,122	5.4	754.9	754.9	755.4	0.5
B	56.56	1,604	11,789	6.0	757.1	757.1	757.7	0.6
C	56.77	1,825	15,350	4.6	760.0	760.0	760.8	0.8
D	56.97	545	6,845	10.4	762.4	762.4	762.9	0.5
E	57.21	570	6,632	10.8	766.6	766.6	767.1	0.5
F	57.38	461	5,835	12.2	769.6	769.6	770.6	1.0
G	57.46	364	5,039	14.2	772.4	772.4	772.8	0.4
H	57.67	467	6,544	10.9	778.0	778.0	778.1	0.1
I	57.92	820	6,637	10.7	782.4	782.4	782.5	0.1
J	58.14	1,070	8,834	8.1	787.2	787.2	787.7	0.5
K	58.32	1,140	8,266	8.6	789.1	789.1	790.1	1.0
L	58.52	715	6,726	10.6	791.9	791.9	792.1	0.2
M	58.73	785	7,241	9.8	795.4	795.4	796.4	1.0
N	58.91	800	7,371	9.7	799.7	799.7	799.7	0.0
O	59.13	865	9,467	7.5	804.6	804.6	805.5	0.9
P	59.27	274	3,979	17.9	806.1	806.1	806.8	0.7
Q	59.48	671	8,695	8.2	813.9	813.9	814.3	0.4
R	59.70	850	7,912	9.0	816.8	816.8	817.2	0.4
S	59.94	490	6,100	11.7	822.0	822.0	822.3	0.3
T	60.11	561	6,310	11.3	824.9	824.9	825.9	1.0
U	60.32	658	8,163	8.7	830.3	830.3	830.7	0.4
V	60.53	950	12,476	5.7	833.9	833.9	834.5	0.6
W	60.74	990	8,560	8.3	835.0	835.0	836.0	1.0
X	60.95	1,270	12,060	5.9	838.5	838.5	839.5	1.0
Y	61.18	1,255	10,668	6.7	841.2	841.2	842.2	1.0
Z	61.57	1,123	9,203	7.7	847.4	847.4	848.4	1.0

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK SKYKOMISH RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK SKYKOMISH RIVER								
AA	61.79	969	6,569	10.9	853.5	853.5	854.3	0.8
AB	62.13	430	6,322	11.3	861.9	861.9	862.6	0.7
AC	62.26	316	5,116	13.9	866.9	866.9	866.9	0.0
AD	62.35	257	4,790	14.9	869.3	869.3	869.3	0.0
AE	62.46	177	3,665	19.5	870.9	870.9	870.9	0.0
AF	62.64	700	10,071	7.1	877.7	877.7	878.5	0.8
AG	62.84	500	7,261	9.8	879.2	879.2	879.8	0.6
AH	63.02	700	7,393	9.6	882.2	882.2	883.1	0.9
AI	63.39	782	9,229	7.7	889.9	889.9	890.9	1.0
AJ	63.72	734	7,527	7.2	895.3	895.3	896.3	1.0
AK	63.99	323	4,637	11.7	899.0	899.0	899.8	0.8
AL	64.18	277	4,195	12.9	904.6	904.6	904.6	0.0
AM	64.36	291	4,277	12.7	907.6	907.6	908.0	0.4
AN	64.53	723	7,671	7.1	911.2	911.2	911.7	0.5
AO	64.82	283	3,442	15.8	915.4	915.4	915.4	0.0
AP	65.11	620	7,936	6.8	924.2	924.2	924.8	0.6
AQ	65.35	637	7,145	7.6	926.8	926.8	927.7	0.9
AR	65.45	600	6,476	8.4	928.5	928.5	929.0	0.5
AS	65.49	560	5,299	10.2	929.2	929.2	929.7	0.5
AT	65.55	548	4,576	11.9	929.4	929.4	930.4	1.0
AU	65.61	195	2,567	21.2	930.3	930.3	930.3	0.0
AV	65.69	455	6,738	8.1	937.9	937.9	937.9	0.0
AW	65.82	351	4,327	12.5	938.5	938.5	938.5	0.0
AX	65.95	289	3,660	14.8	940.5	940.5	941.4	0.9
AY	66.05	570	4,577	11.9	943.8	943.8	943.8	0.0
AZ	66.28	619	3,952	13.7	950.1	950.1	950.1	0.0

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK SKYKOMISH RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK SKYKOMISH RIVER								
BA	66.49	374	4,132	13.1	955.8	955.8	956.7	0.9
BB	66.61	265	5,133	10.6	964.1	964.1	964.1	0.0
BC	66.72	600	8,065	2.8	966.0	966.0	966.0	0.0
BD	66.90	1,354	7,601	3.0	966.3	966.3	966.4	0.1
BE	67.18	790	4,099	5.6	969.1	969.1	969.7	0.6
BF	67.39	233	2,363	9.6	973.0	973.0	973.7	0.7
BG	67.61	128	1,275	17.9	980.3	980.3	980.3	0.0
BH	67.89	330	2,989	7.6	992.8	992.8	992.9	0.1
BI	68.05	330	3,227	7.1	996.4	996.4	996.4	0.0
BJ	68.18	360	2,319	9.8	998.9	998.9	999.5	0.6
BK	68.34	202	1,752	13.0	1,004.2	1,004.2	1,004.3	0.1
BL	68.59	154	1,821	12.5	1,014.5	1,014.5	1,014.5	0.0
BM	68.80	159	1,360	16.8	1,023.7	1,023.7	1,023.7	0.0
BN	69.08	114	1,245	18.3	1,043.1	1,043.1	1,043.6	0.5

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK SKYKOMISH RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK SNOQUALMIE RIVER								
A	9,400	1,681	9,892	2.0	434.6/434.6/434.6 <sup>2</sup>	434.6 <sup>3</sup>	435.1 <sup>3</sup>	0.5
B	12,378	166	1,615	9.3	440.4/440.7/440.6 <sup>2</sup>	440.4 <sup>3</sup>	440.4 <sup>3</sup>	0.0
C	14,432	862	4,541	3.3	445.1/446.1/445.3 <sup>2</sup>	444.9 <sup>3</sup>	445.3 <sup>3</sup>	0.4
D	14,768	721	3,772	4.0	445.6/447.8/446.4 <sup>2</sup>	445.2 <sup>3</sup>	445.7 <sup>3</sup>	0.5
E	16,540	220	2,257	6.6	450.7/452.1/452.1 <sup>2</sup>	450.3 <sup>3</sup>	451.1 <sup>3</sup>	0.8
F	16,960	319	2,151	7.0	451.1/452.3/448.7 <sup>2</sup>	450.8 <sup>3</sup>	451.6 <sup>3</sup>	0.8
G	17,775	860	6,143	2.4	452.8/453.2/453.1 <sup>2</sup>	452.6 <sup>3</sup>	453.4 <sup>3</sup>	0.8
H	18,592	421	2,361	6.4	453.3/453.5/453.4 <sup>2</sup>	453.3 <sup>3</sup>	453.8 <sup>3</sup>	0.5
I	19,180	315	2,735	5.5	454.9/455.4/455.3 <sup>2</sup>	454.9 <sup>3</sup>	455.3 <sup>3</sup>	0.4
J	19,545	307	2,162	6.9	455.5/455.9/455.8 <sup>2</sup>	455.5 <sup>3</sup>	455.8 <sup>3</sup>	0.3
K	20,250	304	2,053	7.3	457.5/457.8/457.8 <sup>2</sup>	457.5 <sup>3</sup>	457.8 <sup>3</sup>	0.3
L	21,220	607	2,076	7.2	460.0/461.1/461.1 <sup>2</sup>	460.0 <sup>3</sup>	460.9 <sup>3</sup>	0.9
M	21,905	985	4,684	3.2	462.7/463.7/463.3 <sup>2</sup>	462.4 <sup>3</sup>	463.3 <sup>3</sup>	0.9
N	23,415	836	3,483	4.3	466.8/467.6/465.1 <sup>2</sup>	465.0 <sup>3</sup>	466.0 <sup>3</sup>	1.0
O	24,088	557	2,380	6.3	468.9/469.6/467.8 <sup>2</sup>	467.7 <sup>3</sup>	468.1 <sup>3</sup>	0.4
P	24,597	388	1,835	8.2	470.7/471.0/469.3 <sup>2</sup>	469.3 <sup>3</sup>	470.1 <sup>3</sup>	0.8
Q	25,613	143	1,587	9.5	476.4/476.6/476.6 <sup>2</sup>	476.4 <sup>3</sup>	476.7 <sup>3</sup>	0.3
R	26,087	192	1,993	7.5	478.2/478.4/478.4 <sup>2</sup>	478.2 <sup>3</sup>	478.2 <sup>3</sup>	0.0
S	27,297	475	2,894	5.2	479.6/479.6/479.7 <sup>2</sup>	479.9 <sup>3</sup>	480.6	0.6
T	27,913	693	4,110	3.7	481.7/481.7/480.8 <sup>2</sup>	480.9 <sup>3</sup>	481.8	0.8
U	28,440	462	3,317	5.3	483.6/483.6/481.4 <sup>2</sup>	481.5 <sup>3</sup>	481.5	-0.1
V	28,869	699	2,712	5.5	484.3/484.3/482.6 <sup>2</sup>	482.7 <sup>3</sup>	483.5	0.7
W	29,243	386	1,863	8.1	485.4/485.4/484.7 <sup>2</sup>	484.8 <sup>3</sup>	484.8	-0.1
X	29,747	158	1,431	10.5	487.5/487.5/486.9 <sup>2</sup>	487.0 <sup>3</sup>	487.1	0.0
Y	30,763	119	1,247	12.0	490.6/490.6/490.1 <sup>2</sup>	490.2 <sup>3</sup>	490.6	0.3
Z	31,898	139	1,368	11.0	495.9/495.6/495.5 <sup>2</sup>	495.6 <sup>3</sup>	495.5	0.1

<sup>1</sup>Feet Above Confluence with Snoqualmie River

Note: Reference to Left and Right are Based on Looking Downstream Direction

<sup>2</sup>Landward of Left Levee/Riverward of Levees/Landward of Right Levee

<sup>3</sup>Elevations Computed Without Consideration of Levees

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK SNOQUALMIE RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK SNOQUALMIE RIVER								
AA	32,358	167	1,592	9.4	497.0/498.4/497.4 <sup>2</sup>	497.4 <sup>3</sup>	498.1	0.7
AB	32,737	162	1,389	10.8	497.8/498.0/498.8 <sup>2</sup>	498.7 <sup>3</sup>	499.6	0.9
AC	33,205	273	2,180	6.9	500.2/502.1/501.0 <sup>2</sup>	502.1 <sup>3</sup>	502.5	0.4
AD	33,741	310	2,439	6.2	502.1/503.0/502.7 <sup>2</sup>	503.2 <sup>3</sup>	503.9	0.7
AE	34,406	182	1,085	13.8	504.3/504.3/504.9 <sup>2</sup>	504.3 <sup>3</sup>	504.3	0.0
AF	34,784	335	2,167	6.9	509.5/509.5/509.2 <sup>2</sup>	509.5 <sup>3</sup>	509.5	0.0
AG	35,191	351	1,914	7.8	511.5/511.5/511.4 <sup>2</sup>	511.5 <sup>3</sup>	511.5	0.0
AH	35,682	152	1,242	12.1	514.9/514.9/514.9 <sup>2</sup>	514.9 <sup>3</sup>	514.9	0.0
AI	36,189	108	1,244	12.1	519.7/519.7/519.6 <sup>2</sup>	519.6 <sup>3</sup>	519.7	0.1
AJ	36,704	103	1,340	11.2	527.0/527.0/528.7 <sup>2</sup>	527.0 <sup>3</sup>	527.0	0.0
AK	37,291	143	1,393	10.8	531.0/531.0/527.8 <sup>2</sup>	531.0 <sup>3</sup>	531.0	0.0
AL	37,841	102	1,000	15.0	535.5/535.5/536.6 <sup>2</sup>	535.5 <sup>3</sup>	535.4	0.2
AM	38,443	155	1,591	9.4	542.1/542.1/541.7 <sup>2</sup>	542.1 <sup>3</sup>	542.6	0.5
AN	39,109	119	1,270	11.8	550.1	550.1 <sup>3</sup>	550.1	0.0
AO	39,654	100	1,204	12.5	554.1	554.1 <sup>3</sup>	554.1	0.0
AP	40,086	128	1,685	8.9	557.4	557.4	557.5	0.1
AQ	40,576	142	1,622	9.3	559.1	559.1	559.3	0.2
AR	41,027	182	1,397	10.7	561.3	561.3	561.4	0.1
AS	41,637	189	2,039	7.4	565.8	565.8	565.8	0.0
AT	42,231	121	1,246	12.0	567.7	567.7	567.7	0.0
AU	43,074	404	3,147	4.8	572.5	572.5	573.1	0.6
AV	43,631	382	2,726	5.5	573.9	573.9	574.6	0.7
AW	44,390	754	4,079	3.7	575.8	575.8	576.8	1.0
AX	44,968	561	2,869	5.2	577.2	577.2	578.1	0.9
AY	45,730	318	2,143	7.0	580.9	580.9	581.0	0.1
AZ	46,420	134	1,312	11.4	583.1	583.1	583.8	0.7

<sup>1</sup>Feet Above Confluence with Snoqualmie River

Note: Reference to Left and Right are Based on Looking Downstream Direction

<sup>2</sup>Landward of Left Levee/Riverward of Levees/Landward of Right Levee

<sup>3</sup>Elevations Computed Without Consideration of Levees

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK SNOQUALMIE RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK SNOQUALMIE RIVER								
BA	47,164	545	3,336	4.5	587.4	587.4	588.1	0.7
BB	48,308	1350	8,269	1.8	593.9	593.9	594.3	0.4
BC	48,829	1293	6,026	2.5	594.3	594.3	594.8	0.5
BD	49,371	113	923	16.3	595.8	595.8	595.8	0.0
BE	49,854	133	1,342	11.2	601.5	601.5	601.9	0.4
BF	50,445	235	1,658	9.0	606.0	606.0	606.0	0.0
BG	50,814	239	1,187	12.6	609.9	609.9	609.9	0.0
BH	51,203	203	1,898	7.9	614.8	614.8	615.0	0.2

<sup>1</sup>Feet Above Confluence with Snoqualmie River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK SNOQUALMIE RIVER**



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SOUTH FORK THORNTON CREEK								
A	247	33	108	2.5	57.6	57.6	57.6	0.0
B	872	17	33	8.1	61.1	61.1	61.1	0.0
C	1,515	15	30	9.0	66.7	66.7	66.7	0.0
D	1,705	14	53	5.1	72.3	72.3	72.3	0.0
E	1,848	12	29	8.5	72.5	72.5	72.5	0.0
F	2,551	11	28	8.9	83.1	83.1	83.1	0.0
G	2,696	12	33	7.5	86.6	86.6	86.6	0.0
H	3,350	18	32	7.6	97.6	97.6	97.6	0.0
I	3,800	16	30	7.9	105.3	105.3	105.3	0.0
J	4,140	28	36	6.6	113.7	113.7	113.7	0.0
K	4,318	5	20	11.4	123.6	123.6	123.6	0.0
L	4,630	25	49	4.3	128.6	128.6	128.6	0.0
M	5,155	45	40	5.3	138.3	138.3	138.3	0.0
N	5,814	10	33	4.8	151.1	151.1	151.1	0.0
O	6,555	29	30	5.3	160.1	160.1	160.1	0.0
P	7,035	13	28	5.6	165.7	165.7	165.8	0.1
Q	7,520	13	21	7.2	173.3	173.3	173.3	0.0
R	7,788	9	15	9.7	186.7	186.7	186.7	0.0
S	8,035	19	24	6.4	195.2	195.2	195.2	0.0
T	9,359	6	16	9.3	225.0	225.0	225.0	0.0
U	9,600	49	47	3.2	227.7	227.7	227.7	0.0
V	9,915	10	19	7.9	231.5	231.5	231.5	0.0
W	10,274	17	40	3.8	233.7	233.7	233.7	0.0
X	10,457	12	49	1.8	236.3	236.3	236.4	0.1
Y	10,557	5	15	6.0	236.8	236.8	236.8	0.0
Z	10,890	10	16	5.5	239.8	239.8	239.8	0.0
AA	11,295	6	11	8.0	245.8	245.8	245.8	0.0

<sup>1</sup>Feet Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SOUTH FORK THORNTON CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY <sup>2</sup> (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SPRINGBROOK CREEK								
A	0	177	2,174	0.8	--	--	--	--
B	225	601	1,596	1.0	--	--	--	--
C	505	688	845	1.8	24.0	--	--	--
D	635	268	515	2.9	--	--	--	--
E	1,035	459	1,115	1.2	--	--	--	--
F	1,305	278	503	2.6	--	--	--	--
G	1,640	541	1,589	0.8	--	--	--	--
H	2,000	74	165	7.9	--	--	--	--
I	2,220	60	314	4.1	--	--	--	--
J	2,537	40	218	5.2	--	--	--	--
K	2,840	76	451	2.5	--	--	--	--
L	3,266	67	468	2.4	--	--	--	--
M	3,754	60	396	2.8	25.0	--	--	--
N	4,280	70	440	2.5	--	--	--	--
O	4,669	61	385	2.9	--	--	--	--
P	4,728	60	583	1.9	--	--	--	--
Q	4,961	64	551	0.7	--	--	--	--
R	5,077	39	283	1.4	--	--	--	--
S	5,225	NA	NA	NA	--	--	--	--
T	5,560	100	46	8.7	--	--	--	--
U	5,564	72	191	2.1	--	--	--	--
V	5,620	60	359	3.1	--	--	--	--
W	5,682	59	340	3.3	--	--	--	--
X	5,777	59	345	3.2	--	--	--	--
Y	5,939	59	408	2.7	--	--	--	--
Z	6,039	58	422	2.7	--	--	--	--

<sup>1</sup>Feet From Black River Pump Station

<sup>2</sup> Springbrook Creek flood elevations are controlled by Green River Flood. Base Flood Elevation are derived from 1% chance flood elevations from Green River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**SPRINGBROOK CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY <sup>3</sup> (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SPRINGBROOK CREEK								
AA	6,489	56	413	2.7	--	--	--	--
AB	6,889	54	384	2.8	26.0	--	--	--
AC	7,189	53	506	2.1	--	--	--	--
AD	7,439	52	387	2.6	--	--	--	--
AE	7,589	51	335	3	--	--	--	--
AF	8,039	56	540	1.9	--	--	--	--
AG	8,339	59	395	2.5	--	--	--	--
AH	8,689	63	386	2.6	--	--	--	--
AI	8,889	65	408	2.4	--	--	--	--
AJ	8,989	65	469	2.1	--	--	--	--
AK	9,089	929 <sup>2</sup>	513	1.9	--	--	--	--
AL	9,189	617 <sup>2</sup>	495	1.8	27.0	--	--	--
AM	9,491	610 <sup>2</sup>	544	1.6	--	--	--	--
AN	9,691	572 <sup>2</sup>	446	1.9	--	--	--	--
AO	9,766	456 <sup>2</sup>	509	1.7	--	--	--	--
AP	10,092	326 <sup>2</sup>	489	1.7	--	--	--	--
AQ	10,213	318 <sup>2</sup>	557	1.5	--	--	--	--
AR	10,309	2,163 <sup>2</sup>	620	1.4	--	--	--	--
AS	10,435	2,256 <sup>2</sup>	597	1.4	--	--	--	--
AT	10,937	2,281 <sup>2</sup>	570	1.4	28.0	--	--	--
AU	11,344	2,151 <sup>2</sup>	428	1.8	--	--	--	--
AV	11,882	63	306	2.7	--	--	--	--
AW	12,370	63	304	2.8	--	--	--	--
AX	12,661	63	504	2.2	--	--	--	--
AY	13,061	59	492	2.3	29.0	--	--	--
AZ	13,661	54	449	2.5	--	--	--	--

<sup>1</sup>Feet From Black River Pump Station

<sup>2</sup>Cross Section Includes Wetland

<sup>3</sup>Springbrook Creek flood elevations are controlled by Green River Flood. Base Flood Elevation are derived from 1% chance flood elevations from Green River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SPRINGBROOK CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY <sup>2</sup> (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SPRINGBROOK CREEK								
BA	14,061	50	358	3.1	--	--	--	--
BB	14,637	42	369	3.0	--	--	--	--
BC	14,710	41	343	3.3	--	--	--	--
BD	14,970	43	385	2.9	--	--	--	--
BE	15,235	56	468	2.3	--	--	--	--
BF	16,235	88	514	2.1	--	--	--	--
BG	16,935	60	299	3.5	--	--	--	--
BH	3.03 <sup>3</sup>	80	477	2.6	30.0	--	--	--
BI	3.17 <sup>3</sup>	70	561	1.2	--	--	--	--
BJ	3.49 <sup>3</sup>	75	520	1.3	--	--	--	--
BK	3.80 <sup>3</sup>	88	453	1.5	--	--	--	--
BL	3.95 <sup>3</sup>	59	328	2	31.0	--	--	--
BM	4.08 <sup>3</sup>	100	733	0.9	--	--	--	--
BN	4.29 <sup>3</sup>	50	316	2.1	--	--	--	--
BO	4.33 <sup>3</sup>	92	739	0.9	--	--	--	--
BP	4.51 <sup>3</sup>	30	303	1.7	--	--	--	--
BQ	4.63 <sup>3</sup>	33	238	2.1	32.0	--	--	--
BR	4.82 <sup>3</sup>	29	218	2.3	--	--	--	--
BS	4.97 <sup>3</sup>	21	141	3.5	33.0	--	--	--
BT	5.13 <sup>3</sup>	28	211	2.4	--	--	--	--
BU	5.16 <sup>3</sup>	20	161	3.1	--	--	--	--
BV	5.36 <sup>3</sup>	30	202	2.5	34.0	--	--	--
BW	5.53 <sup>3</sup>	19	147	3.4	--	--	--	--
BX	5.57 <sup>3</sup>	24	174	0.7	35.0	--	--	--
BY	5.65 <sup>3</sup>	30	187	0.6	--	--	--	--
BZ	5.80 <sup>3</sup>	28	122	0.9	--	--	--	--

<sup>1</sup>Feet From Black River Pump Station

<sup>3</sup>Springbrook Creek flood elevations are controlled by Green River Flood. Base Flood Elevation are derived from 1% chance flood elevations from Green River

<sup>3</sup>For cross section BH to CL, the distance are obtained from effective FIS report April 19 ,2005

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SPRINGBROOK CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY <sup>2</sup> (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SPRINGBROOK CREEK								
CA	5.94 <sup>3</sup>	28	87	1.3	36.0	--	--	--
CB	6.07 <sup>3</sup>	19	59	2.0	--	--	--	--
CC	6.18 <sup>3</sup>	25	75	1.4	--	--	--	--
CD	6.21 <sup>3</sup>	34	96	1.1	--	--	--	--
CE	6.36 <sup>3</sup>	28	60	1.8	37.0	--	--	--
CF	6.38 <sup>3</sup>	30	69	1.4	--	--	--	--
CG	6.46 <sup>3</sup>	35	81	1.2	--	--	--	--
CH	6.58 <sup>3</sup>	23	92	0.8	--	--	--	--
CI	6.74 <sup>3</sup>	13	50	2	38.0	--	--	--
CJ	6.85 <sup>3</sup>	25	99	1	--	--	--	--
CL	6.89 <sup>3</sup>	30	130	1.5	--	--	--	--
CM	7.18 <sup>3</sup>	30	78	3.8	--	--	--	--

<sup>1</sup>Feet From Black River Pump Station

<sup>3</sup> Springbrook Creek flood elevations are controlled by Green River Flood. Base Flood Elevation are derived from 1% chance flood elevations from Green River

<sup>3</sup> For cross section BH to CL, the distance are obtained from effective FIS report April 19 ,2005

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SPRINGBROOK CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
SW 23rd STREET DRAINAGE CHANNEL								
CA	0	60 <sup>2</sup>	32	4.5	16.9	16.9	17.8	0.9
CB	420	60 <sup>2</sup>	183	0.8	16.9	16.9	17.8	0.9
CC	500	60 <sup>2</sup>	169	0.9	16.9	16.9	17.8	0.9
CD	550	60 <sup>2</sup>	165	0.9	16.9	16.9	17.8	0.9
CE	810	60 <sup>2</sup>	89	1.6	16.9	16.9	17.8	0.9
CF	896	90 <sup>2</sup>	293	0.5	17.0	17.0	17.8	0.8
CG	947	90 <sup>2</sup>	254	0.6	17.0	17.0	17.8	0.8
CH	1,061	53	153	0.9	17.0	17.0	17.8	0.8
CI	1,110	60	26	5.5	17.1	17.1	17.8	0.7
CJ	1,545	60	204	0.7	17.1	17.1	17.8	0.7
CK	2,075	60	184	0.8	17.1	17.1	17.8	0.7
CL	2,292	40	105	1.4	17.1	17.1	17.9	0.8
CM	2,391	40	248	0.5	18.1	18.1	18.4	0.3
CN	2,492	40	218	0.5	18.1	18.1	18.4	0.3

<sup>1</sup>Feet Above Confluence With Springbrook Creek

<sup>2</sup>Cross Section Includes Wetlands

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SW 23RD STREET DRAINAGE CHANNEL**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY <sup>2</sup> (FEET NAVD)	WITHOUT FLOODWAY <sup>3</sup> (FEET NAVD)	WITH FLOODWAY <sup>3</sup> (FEET NAVD)	INCREASE (FEET)
SWAMP CREEK								
A	960	50	232	3.9	21.1	19.8	19.8	0.0
B	1,400	47	240	3.8	21.1	20.6	20.6	0.0
C	1,870	147	652	1.4	25.0	25.0	26.0	1.0
D	2,300	45	294	3.1	25.2	25.2	26.2	1.0
E	2,491	84	374	2.4	26.0	26.0	26.8	0.8
F	2,791	26	191	4.8	26.3	26.3	26.9	0.6
G	3,271	28	214	4.3	27.1	27.1	28.0	0.9
H	3,860	54	283	3.2	28.3	28.3	29.2	0.9
I	4,461	413	1,330	0.7	28.9	28.9	29.9	1.0
J	5,151	302	419	2.1	30.5	29.7	30.7	1.0
K	5,661	530	834	1.0	34.0	31.9	32.9	1.0
L	6,271	286	275	3.2	35.6	34.6	35.5	0.9
M	6,961	467	865	1.0	39.7	38.0	39.0	1.0
N	7,561	37	95	9.1	43.9	43.1	43.1	0.0
O	7,941	59	223	3.9	46.0	46.3	47.2	0.9
P	8,141	47	192	4.5	47.9	47.9	48.5	0.6
Q	8,181	66	186	4.7	48.3	48.3	48.6	0.3
R	8,931	242	397	2.2	53.3	53.3	53.7	0.4
S	9,631	33	93	9.4	56.5	56.5	56.6	0.1
T	9,961	295	351	2.5	60.6	60.6	61.5	0.9
U	10,231	75	143	6.1	62.7	62.7	63.2	0.5
V	10,791	48	172	5.1	67.9	67.9	68.9	1.0
W	11,381	55	144	6.0	75.0	75.0	75.0	0.0
X	12,031	28	176	4.9	78.9	78.9	79.8	0.9
Y	12,791	57	169	5.1	84.0	84.0	84.3	0.3

<sup>1</sup>Feet Above Mouth

<sup>2</sup>Elevation Computed for Flow Confined to Main Channel Between Sections I and N

<sup>3</sup>Elevations Computed Without Consideration of Backwater from Sammamish River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**SWAMP CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY <sup>2</sup> (FEET NAVD)	WITH FLOODWAY <sup>2</sup> (FEET NAVD)	INCREASE (FEET)
THORNTON CREEK								
A	327	22	76	5.1	19.1	19.1	19.1	0.0
B	860	31	109	3.6	23.6	23.6	23.7	0.1
C	1,046	13	63	5.3	24.1	24.1	24.2	0.1
D	1,295	43	158	2.1	26.3	26.3	26.5	0.2
E	1,410	46	167	2.0	26.4	26.4	26.6	0.2
F	1,745	24	186	1.8	34.6	34.6	34.6	0.0
G	1,960	28	86	1.8	34.6	34.6	34.6	0.0
H	2,090	17	143	2.3	36.3	36.3	36.3	0.0
I	2,460	17	118	2.8	36.3	36.3	36.3	0.0
J	2,778	43	172	1.8	36.4	36.4	36.6	0.2
K	2,860	41	159	2.0	36.4	36.4	36.6	0.2
L	3,395	18	67	4.7	37.3	37.3	37.4	0.1
M	3,850	15	73	4.2	38.6	38.6	38.8	0.2
N	4,170	34	99	2.9	39.1	39.1	39.4	0.3
O	4,990	21	48	6.0	41.3	41.3	41.3	0.0
P	5,275	16	44	6.5	43.5	43.5	43.5	0.0
Q	5,488	22	72	4.1	44.5	44.5	45.4	0.9
R	5,606	18	73	3.6	45.3	45.3	46.1	0.8
S	5,888	28	82	3.2	46.7	46.7	47.2	0.5
T	6,046	20	68	3.8	47.2	47.2	47.6	0.4
U	6,460	16	68	3.7	47.9	47.9	48.2	0.3
V	6,570	63	404	0.6	50.9	50.9	50.9	0.0
W	6,800	35	178	3.3	50.9	50.9	50.9	0.0
X	7,155	31	143	4.1	53.3	53.3	53.5	0.2

<sup>1</sup>Feet Above Mouth

<sup>2</sup>Elevations Without Consideration of Backwater Effects From Lake Washington

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**THORNTON CREEK**



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TIBBETTS CREEK								
A	0.15	N/A	N/A	N/A	35.7	35.7	N/A	N/A
B	0.29	23	88	5.4	36.2	36.2	37.2	1.0
C	0.51	29	128	3.3	43.1	43.1	43.2	0.1
D	0.62	58	148	2.9	46.9	46.9	47.2	0.3
E	0.73	22	77	5.5	49.5	49.5	50.5	1.0
F	0.86	29	99	4.3	54.7	54.7	55.3	0.6
G	0.97	19	79	5.4	57.2	57.2	57.4	0.2
H	1.07	19	61	7.0	60.2	60.2	60.3	0.1
I	1.11	22	82	5.2	61.4	61.4	62.0	0.6
J	1.17	39	135	3.1	67.4	67.4	67.6	0.2
K	1.27	11	39	10.9	72.6	72.6	72.6	0.0
L	1.34	27	174	1.9	81.3	81.3	81.3	0.0
M	1.42	36	155	2.1	81.4	81.4	81.5	0.1
N	1.44	17	88	3.7	81.6	81.6	81.7	0.1
O	1.55	30	46	7.1	88.8	88.8	88.8	0.0
P	1.66	85	91	3.6	98.9	98.9	98.9	0.0
Q	1.74	24	6	7.1	106.8	106.8	107.2	0.4
R	1.77	19	77	4.2	114.3	114.3	114.5	0.2
S	1.80	13	65	5.0	116.8	116.8	117.4	0.6
T	1.83	39	201	1.6	117.1	117.1	118.1	1.0
U	1.89	11	30	10.8	121.2	121.2	121.5	0.3
V	1.94	64	51	6.4	128.0	128.0	128.0	0.0
W	1.97	12	32	10.1	130.6	130.6	130.8	0.2
X	2.03	16	74	4.4	138.2	138.2	138.4	0.2
Y	2.09	28	44	7.4	141.1	141.1	141.2	0.1
Z	2.14	18	40	8.2	146.5	146.5	146.5	0.0

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**TIBBETTS CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TIBBETTS CREEK								
AA	2.19	38	48	6.7	152.3	152.3	152.4	0.1
AB	2.23	31	39	8.4	160.6	160.6	160.6	0.0
AC	2.28	7	55	5.9	179.4	179.4	179.4	0.0
AD	2.29	22	111	2.9	179.8	179.8	180.0	0.2
AE	2.33	8	53	6.1	186.1	186.1	186.4	0.3
AF	2.34	24	61	5.4	186.1	186.1	186.7	0.6
AG	2.38	160	30	10.9	190.9	190.9	191.0	0.1

<sup>1</sup>Miles Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**TIBBETTS CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TOLT RIVER								
A <sup>2</sup>								
B	2,350	2,170	8,231	2.7	76.9 <sup>3</sup>	74.3 <sup>5</sup>	75.0 <sup>5</sup>	0.7
C	2,880	1,500	6,797	3.2	80.2	80.2	80.3	0.1
D	3,235	1,300	6,219	3.5	80.6	80.6	81.3	0.7
E	3,740	1,200	5,424	4.1	81.7	81.7	82.6	0.9
F	4,345	1,300	3,833	5.7	84.8	84.8	85.5	0.7
G	4,775	778	3,376	6.5	87.7	87.7	88.7	1.0
H	5,390	570	2,697	8.2	92.5	92.5	93.5	1.0
I	5,835	492	4,137	5.3	97.0/97.0/96.0 <sup>4</sup>	97.0 <sup>6</sup>	97.2 <sup>6</sup>	0.2
J	6,355	1,000	6,880	3.2	99.2/99.5/98.2 <sup>4</sup>	99.0 <sup>6</sup>	99.4 <sup>6</sup>	0.4
K	7,030	642	3,226	6.8	101.4/101.7/101.6 <sup>4</sup>	101.2 <sup>6</sup>	101.6 <sup>6</sup>	0.4
L	7,690	650	3,324	6.6	104.4/106.0/105.9 <sup>4</sup>	104.3 <sup>6</sup>	105.1 <sup>6</sup>	0.8
M	8,300	810	3,099	7.1	107.8/108.6/108.2 <sup>4</sup>	107.3 <sup>6</sup>	108.2 <sup>6</sup>	0.9
N	9,055	900	4,302	5.1	112.0/113.9/112.5 <sup>4</sup>	111.5 <sup>6</sup>	112.3 <sup>6</sup>	0.8
O	9,735	856	4,365	5.0	115.3/116.4/116.1 <sup>4</sup>	115.2 <sup>6</sup>	116.0 <sup>6</sup>	0.8
P	10,595	1,272	4,853	4.5	119.9/119.8/119.8 <sup>4</sup>	119.9 <sup>6</sup>	120.8 <sup>6</sup>	0.9
Q	11,185	902	4,355	5.1	123.1	123.1	123.9	0.8
R	12,365	707	3,515	6.3	129.8	129.8	130.4	0.6
S	13,160	693	3,321	6.6	136.3	136.3	136.7	0.4
T	13,920	1,068	4,487	4.9	141.8	141.8	142.7	0.9
U	14,860	287	2,059	10.7	148.9	148.9	149.6	0.7
V	15,385	1,100	5,144	4.3	153.5	153.5	154.5	1.0
W	16,255	724	3,447	6.4	157.5	157.5	158.5	1.0
X	16,855	826	4,011	5.5	161.4	161.4	162.4	1.0
Y	17,625	855	5,149	4.3	165.2	165.2	165.3	0.1
Z	18,235	279	1,601	13.7	170.8	170.8	171.4	0.6

<sup>1</sup>Feet Above Mouth

<sup>2</sup>Cross Section Located Within Snoqualmie River Floodway

<sup>3</sup>Backwater from Snoqualmie River

<sup>4</sup>Landward of Left Levee/Riverward of Levees/Landward of Right Levee

<sup>5</sup>Elevations Calculated Without Consideration of Backwater from Snoqualmie River

<sup>6</sup>Elevations Computed Without Consideration of Levees

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**TOLT RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TOLT RIVER								
AA	19,045	1,102	5,668	3.9	177.8	177.8	178.8	1.0
AB	19,690	750	3,606	6.1	180.9	180.9	181.2	0.3
AC	20,340	632	3,508	6.3	184.4	184.4	185.3	0.9
AD	20,795	435	2,553	8.6	187.9	187.9	188.2	0.3
AE	21,555	352	2,628	8.4	193.2	193.2	193.7	0.5
AF	22,135	752	4,552	4.8	196.1	196.1	197.0	0.9
AG	22,935	805	3,276	6.7	200.1	200.1	200.9	0.8
AH	23,920	790	4,929	4.5	205.4	205.4	206.4	1.0
AI	24,280	436	2,806	7.8	206.9	206.9	207.8	0.9
AJ	24,730	434	2,984	7.4	210.1	210.1	211.0	0.9
AK	25,515	604	3,236	6.8	215.3	215.3	216.3	1.0
AL	26,265	380	2,722	8.1	221.3	221.3	221.3	0.0
AM	26,755	363	3,138	7.0	223.9	223.9	224.3	0.4
AN	27,255	334	2,245	9.8	226.8	226.8	227.0	0.2
AO	27,795	371	3,194	6.9	230.1	230.1	231.0	0.9
AP	28,610	374	2,647	8.3	233.8	233.8	234.8	1.0
AQ	29,355	379	2,434	9.0	238.5	238.5	239.4	0.9
AR	30,150	230	2,046	10.8	244.5	244.5	245.5	1.0
AS	30,900	190	1,747	12.6	251.7	251.7	252.4	0.7
AT	31,365	235	2,050	10.7	257.7	257.7	258.0	0.3
AU	31,770	377	3,878	5.7	262.4	262.4	263.3	0.9

<sup>1</sup>Feet Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**TOLT RIVER**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
UPPER NORTH OVERFLOW								
A	300	161	783	2.7	444.9	444.9	445.6	0.7
B	475	161	819	2.6	445.0	445.0	445.8	0.8
C	2,000	123	319	6.7	449.7	449.7	450.3	0.6
D	2,600	166	552	3.9	452.9	452.9	453.2	0.3
E	3,050	188	301	7.2	455.6	455.6	455.9	0.3
F	3,200	187	334	6.4	457.2	457.2	457.4	0.2
G	3,900	95	379	5.7	460.2	460.2	460.6	0.4

<sup>1</sup>Feet Above Convergence with Upper South Overflow

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**UPPER NORTH OVERFLOW**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
UPPER SOUTH OVERFLOW								
A	2,200	111	398	10.8	440.4	440.4	440.6	0.2
B	2,900	175	1,025	4.2	444.9	444.9	445.6	0.7
C	3,900	84	327	6.6	448.6	448.6	448.8	0.2
D	4,700	127	611	3.5	454.3	454.3	454.8	0.5
E	5,650	203	379	5.7	456.3	456.3	456.6	0.3

<sup>1</sup>Feet Above Confluence with South Fork Snoqualmie River

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**UPPER SOUTH OVERFLOW**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
WALKER CREEK								
A	290	132	217	5.0	14.5	14.5	14.9	0.4
B	510	134	482	2.2	15.7	15.7	16.6	0.9
C	710	254	809	1.3	16.1	16.1	16.9	0.8
D	920	35	98	4.7	16.4	16.4	17.1	0.7
E	1,100	34	106	4.3	17.7	17.7	18.2	0.5
F	1,160	7	35	9.0	19.6	19.6	20.6	1.0
G	1,200	20	97	3.2	19.8	19.8	20.8	1.0
H	1,410	20	49	5.8	20.6	20.6	21.5	0.9
I	1,600	20	37	7.7	25.4	25.4	25.5	0.1
J	1,720	15	50	5.7	27.2	27.2	28.1	0.9

<sup>1</sup>Feet Above Mouth

<sup>2</sup>Because of Map Scale Limitations, All Floodway Widths Less Than 30 Feet Are Shown As 30 Feet

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**WALKER CREEK**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
WEST FORK ISSAQUAH CREEK								
A	130	21	74	7.5	234.7	234.7	235.7	1.0
B	230	10	45	12.4	238.2	238.2	238.2	0.0
C	404	24	181	3.0	243.8	243.8	243.8	0.0
D	1,304	35	69	8.0	259.2	259.2	259.3	0.1
E	2,204	22	59	9.3	276.8	276.8	276.8	0.0
F	3,384	24	59	8.9	308.6	308.6	308.6	0.0
G	4,214	30	70	7.6	316.8	316.8	316.9	0.1
H	4,394	22	76	7.0	318.5	318.5	318.7	0.2
I	4,508	39	214	2.5	321.9	321.9	322.8	0.9
J	4,708	88	468	1.1	321.9	321.9	322.9	1.0
K	4,917	156	703	0.8	322.0	322.0	323.0	1.0
L	5,267	167	467	1.1	322.0	322.0	323.0	1.0
M	5,570	139	278	1.2	322.2	322.2	323.2	1.0
N	6,570	26	48	6.9	323.8	323.8	323.8	0.0
O	7,740	27	108	1.9	326.2	326.2	327.0	0.8
P	7,966	26	93	2.1	327.5	327.5	328.4	0.9
Q	8,346	26	104	1.9	328.2	328.2	328.8	0.6
R	8,774	28	115	1.7	328.6	328.6	329.3	0.7
S	9,324	64	165	1.2	328.7	328.7	329.5	0.8
T	9,796	176	422	0.5	328.7	328.7	329.7	1.0
U	10,521	119	139	1.4	328.7	328.7	329.7	1.0
V	10,806	136	541	0.4	328.7	328.7	329.7	1.0
W	11,456	62	204	1.0	328.7	328.7	329.7	1.0

<sup>1</sup>Feet Above Mouth

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**  
AND INCORPORATED AREAS

**FLOODWAY DATA**

**WEST FORK ISSAQUAH CREEK**



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
WHITE RIVER								
A - D <sup>2</sup>								
E	6.47	448	2,831	6.5	93.6	93.6	93.6	0.0
F	6.69	380	1,498	12.3	96.3	96.3	96.3	0.0
G	6.84	329	1,444	12.7	102.5	102.5	102.5	0.0
H	7.04	295	1,327	13.9	109.6	109.6	109.6	0.0
I	7.27	189	1,258	14.6	116.2	116.2	116.2	0.0
J	7.43	215	1,400	13.1	121.8	121.8	121.8	0.0
K	7.51	223	1,276	14.4	124.0	124.0	124.0	0.0
L	7.63	242	1,768	10.4	128.6	128.6	128.6	0.0
M	7.79	314	1,937	9.5	132.1	132.1	132.1	0.0
N	8.01	334	1,938	9.5	138.0	138.0	138.0	0.0
O	8.19	240	1,274	14.4	144.7	144.7	145.1	0.4
P	8.59	300	2,298	8.0	159.1	159.1	159.5	0.4

<sup>1</sup>Miles Above Mouth

<sup>2</sup>Floodway Not Applicable

TABLE 5

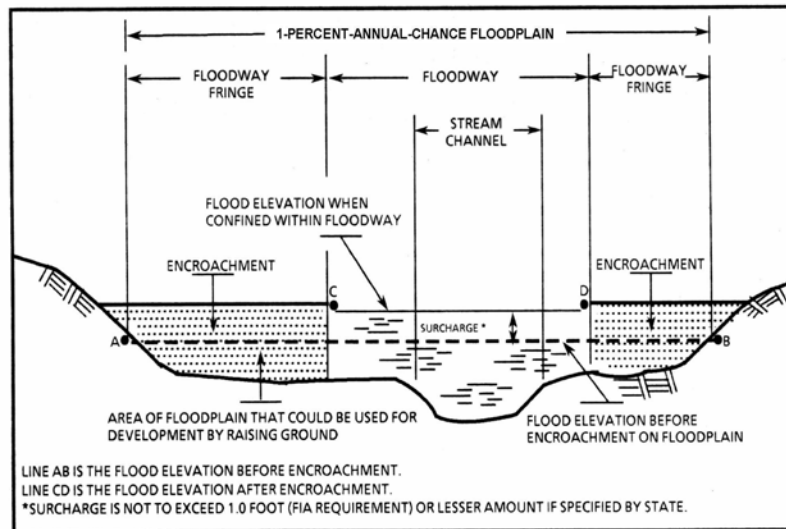
FEDERAL EMERGENCY MANAGEMENT AGENCY

**KING COUNTY, WA**

AND INCORPORATED AREAS

**FLOODWAY DATA**

**WHITE RIVER**



**Figure 1. Floodway Schematic**

## **5.0 INSURANCE APPLICATION**

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

### **Zone A**

Zone A is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base (1-percent-annual-chance) flood elevations (BFEs) or depths are shown within this zone.

### **Zone AE**

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by detailed methods. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### **Zone AH**

Zone AH is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually areas of ponding) where

average depths are between 1 and 3 feet. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### **Zone AO**

Zone AO is the flood insurance rate zone that corresponds to areas of 1-percent-annual-chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the detailed hydraulic analyses are shown within this zone.

### **Zone VE**

Zone VE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### **Zone X**

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile (sq. mi.), and areas protected from the base flood by levees. No BFEs or depths are shown within this zone.

### **Zone D**

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

## **6.0 FLOOD INSURANCE RATE MAP**

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For flood management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of King County. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. This countywide FIRM also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community are presented in Table 6, "Community Map History."

## **7.0 OTHER STUDIES**

Due to its more detailed hydraulic analyses, this Flood Insurance Study supersedes all previous Flood Insurance Studies/Flood Insurance Rate Maps covering King County and the incorporated areas (References 1 to 18, 90, 91). The City of Bothell and the Town of Milton have individual effective Flood Insurance Studies (References 92 and 93, respectively).

## **8.0 LOCATION OF DATA**

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting Federal Insurance and Mitigation Division, FEMA Region X, Federal Regional Center, 130 228<sup>th</sup> Street, SW, Bothell, Washington 98021-9796.

## **9.0 BIBLIOGRAPHY AND REFERENCES**

1. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, King County, Washington, (Unincorporated Areas), March 1978.
2. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Auburn, Washington, December 1980.
3. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Bellevue, Washington, February 23, 1982.
4. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Town of Carnation, Washington, September 1979.
5. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Des Moines, Washington, November 15, 1985.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISION DATE(S)	FLOOD INSURANCE RATE MAP EFFECTIVE DATE	FLOOD INSURANCE RATE MAP REVISION DATE(S)
Algona, City of <sup>1</sup>	NA	NA	NA	NA
Auburn, City of	May 24, 1974	September 19, 1975 February 18, 1977	June 1, 1981	
Beaux Arts Village, Town of <sup>1</sup>	NA	NA	NA	NA
Bellevue, City of	August 2, 1974	August 13, 1976	December 1, 1976	February 23, 1982
Black Diamond, Town of	July 25, 1975	October 30, 1979	October 30, 1979	--
Bothell, City of	May 24, 1974	November 12, 1976	June 1, 1982	March 2, 1994
Burien, City of	--	--	April 19, 2005	--
Carnation, City of	May 31, 1974	March 5, 1976	March 4, 1980	--
Clyde Hill, Town of <sup>1</sup>	NA	NA	NA	NA
Covington, City of	--	--	--	--
Des Moines, City of	June 28, 1974	January 2, 1976	May 15, 1980	November 15, 1985
Duvall, Town of	August 20, 1976	--	June 4, 1980	--
Enumclaw, City of	September 29, 1989	--	September 29, 1989	--
Federal Way, City of	--	--	--	--
Hunts Point, Town of <sup>1</sup>	NA	NA	NA	NA
Issaquah, City of	February 8, 1974	February 25, 1977	May 1, 1980	--
Kent, City of	June 7, 1974	April 22, 1977	April 1, 1981	--
Kenmore, City of	--	--	--	--
King Unincorp Areas	January 17, 1975	--	September 29, 1978	--
Kirkland, City of	June 28, 1974	September 12, 1975	June 15, 1981	--
Lake Forest Park, City of	June 28, 1974	February 27, 1976	February 15, 1980	--
Mapel Valley, City of	--	--	--	--
Medina, City of <sup>1</sup>	NA	NA	NA	NA
Mercer Island, City of <sup>1</sup>	NA	NA	NA	NA
Newcastle, City of	--	--	--	--
Normandy Park, City of	June 28, 1974	October 31, 1975	November 2, 1977	August 5, 1980
North Bend, City of	May 17, 1974	May 7, 1976	August 1, 1984	--
Pacific, City of	June 28, 1974	December 26, 1975	December 2, 1980	--
Redmond, City of	March 22, 1974	July 9, 1976	February 1, 1979	January 19, 1982
Renton, City of	June 7, 1974	November 7, 1975	May 5, 1981	--
Sammamish, City of	--	--	--	--
SeaTac, City of	--	--	April 19, 2005	--
Seattle, City of	November 22, 1974	July 19, 1977	July 19, 1977	--
Shoreline, City of	--	--	--	--
Skykomish, Town of	February 14, 1975	--	July 2, 1981	--
Snoqualmie, City of	December 21, 1973	--	July 5, 1984	--
Snoqualmie Indian Tribe	NA	NA	NA	NA
Tukwila, City of	May 24, 1974	September 13, 1977	August 3, 1981	--
Woodinville, City of	--	--	April 19, 2005	--
Yarrow Point, Town of <sup>1</sup>	NA	NA	NA	NA

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

KING COUNTY, WA

AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

<sup>1</sup> Non-Floodprone

6. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Town of Duvall, Washington, December 1979.
7. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Issaquah, Washington, November 1979.
8. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Kent, Washington, October 1980.
9. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Kirkland, Washington, December 15, 1980.
10. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Lake Forest Park, Washington, August 1979.
11. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Normandy Park, Washington, August 1980.
12. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of North Bend, Washington, February 1, 1984.
13. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Pacific, Washington, June 1980.
14. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Redmond, Washington, January 1982.
15. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Renton, Washington, November 1980.
16. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Town of Skykomish, Washington, January 2, 1981.
17. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Snoqualmie, Washington, January 5, 1984.
18. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Tukwila, Washington, February 3, 1981.
19. Puget Sound Council of Governments, "Puget Sound Trends No. 5 (Revised)," July 1986.
20. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Washington.

21. U.S. Department of Interior, Geological Survey, Magnitude and Frequency in Washington, Open-File Report 74-336 by J.E. Cummins, M.R. Collings, and E.G. Nassar, Tacoma, Washington, 1975.
22. U.S. Department of Interior, Geological Survey, Tacoma, Washington, Personnel Communication, 1986.
23. U.S. Department of the Army, Corps of Engineers, "Green River Flood Reduction Study: Appendix E, Section 1—Hydrology," 1984.
24. U.S. Department of the Army, Corps of Engineers, Seattle District, "Maximum Annual Peak Frequency Curve, Green River Near Auburn," January, 1981; "Maximum Annual Peak Discharge Frequency Curve, Green River at Tukwila," January 14, 1986.
25. King County Department of Public Works, "Green River Management Agreement," 1985.
26. King County Department of Public Works, Surface Water Management, Operation and Maintenance Division "Personal Communication – P1 Pump Station Operation," September and December 1986.
27. U.S. Department of Interior, Geological Survey, "Peak Flows from Drainage Areas in Washington," by J.H. Bartells and G.T. Higgins, July 1966.
28. U.S. Department of the Army, Corps of Engineers, Seattle District, Flood Insurance Study-King County, Washington (Unincorporated Areas), Seattle, Washington, March 1978.
29. Issaquah Environmental Council, "Aerial Photographs and Videotape of November 24, 1986 Flood Event, Issaquah, Washington," January 6, 1986.
30. U.S. Department of Agriculture, Soil Conservation Service, Watershed Work Plan, Appendix A, Preliminary Plans Structural Measures East Side Green River Watershed King County, Washington," April 1965.
31. U.S. Water Resources Council, "A Uniform Technique for Determining Flood Flow Frequencies," Bulletin 15, December 1967.
32. U.S. Department of the Interior, Geological Survey, "Program G745: Flood Flow Frequency Analysis," Olympia, Washington, October 1985.
33. U.S. Department of the Interior, Geological Survey, Office of Water Data Coordination, Bulletin #17B, "Guidelines for Determining Flood Flow Frequency," Revised September 1982.

34. U.S. Department of the Interior, Geological Survey, "Evaluation and Design of a Streamflow-Data Network in Washington," Open-File Report 78-167, by M.E. Moass and W.L. Haushild, Tacoma, Washington, 1978.
35. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, "HEC-1 Hydrograph Package Users Manual," Computer Program 723-X6-12010, Revised January 1985.
36. Seattle Engineering Department, Office for Planning, Sewer and Drainage Planning – Rain Gaging Program, "Storm Summaries for Storm of January 17-18, 1986 and Hourly and Daily Rainfall Totals (Stations 1, 2, 4, 5, 14, 15, 17)," January 1986.
37. City of Kent, URS Engineers Matrix Management Group, "City of Kent Surface Drainage Utility Drainage Master Plan," February 1984.
38. U.S. Department of the Army, Corps of Engineers, Flood Plain Management Division, "Green River Interior Runoff Test File, HEC-1 Program Run for Basin E, 100-Year Event," September 1981.
39. U.S. Department of Agriculture, Soil Conservation Service, "Fast Side Green River Watershed: Design Discharges—P1 Channel," April 1980.
40. U.S. Department of the Army, Corps of Engineers, Backwater Channel Capacity Study, R.M. 0.0 to R.M. 28, White River, Auburn, Washington, November 25, 1974.
41. U.S. Department of Agriculture, Soil Conservation Service, Engineering Division, Technical Release No. 20, Computer Program for Project Formulation Hydrology, May 1965.
42. U.S. Department of Interior, Geological Survey, Open-File Report 74-336, Magnitude and Frequency of Floods in Washington, Tacoma, Washington, 1975.
43. Stevens, Thompson and Runyan, Inc., "Sea-Tac Communities Plan, Port of Seattle," August 1974.
44. CH2M HILL, Inc., Contour Maps, Scale 1:1,200, Contour Interval 2 feet, Normandy Park 1963.
45. King County Engineering Department, 1953 Aerial Topographic Survey (Sheets 1 and 2), Scale 1:4,800, Contour Interval 10 feet: Bothell, Washington (1953).



46. U.S. Department of the Army, Corps of Engineers, Topographic Maps, Scale 1:2,400, Contour Interval 2 feet: Auburn, Washington (1984).
47. U.S. Department of the Army, Corps of Engineers, Ortho-Photogrammetric Mapping, Snohomish River Basin, Washington, Scale 1:12,000: Seattle, Washington, June 7, 1975 (revised 1979).
48. CH2M HILL, Inc., Aerial Photographic Mosaic, North Bend, Washington, Scale 1:4,800, Washington, Photographed October 5, 1977.
49. CH2M HILL, Inc., Composite Mapping of North Bend, Washington, Scale 1:4,800, Contour Interval 2 feet, October 5, 1977.
50. U.S. Department of the Army, Corps of Engineers, "Topographic Maps of the Green River and Vicinity," Scale 1:1,200, Reduced to 1:4,800, Contour Interval 2 Feet, 1980.
51. Norman Associates, Inc., Topographic Maps, Scale 1:1,200, Contour Interval 2 feet, 1977.
52. U.S. Department of the Interior, Geological Survey, Geological Survey Open-File Report No. 76-499, Computer Applications for Step Backwater and Floodway Analysis, User's Manual No. 76-499, Reston, Virginia, 1976.
53. American Concrete Pipe Association, Concrete Pipe Design Manual, Arlington, Virginia, February 1974.
54. Portland Cement Association, Handbook of Concrete Culvert Pipe Hydraulics, Chicago, Illinois, 1964.
55. University of California at Berkeley, Street and Highway Drainage Volume 2 – Design Charts, Berkeley, California, November 1969.
56. Washington State Highway Commission, Department of Highways, Highway Hydraulics Manual, Olympia, Washington, 1972.
57. U.S. Department of the Army, Corps of Engineers, Seattle District, Computer Program G37322110, Backwater Curve Method II-With Floodway Analysis, Seattle, Washington.
58. U.S. Department of the Army, Corps of Engineers, Hydrologic Engineering Center, "HEC-2 Water Surface Profiles, Users Manual," Davis, California, September 1982.
59. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center, "Shore Protection Manual," Fort Belvoir, Virginia, 1973.

60. U.S. Department of the Army, Corps of Engineers, Letter to FEMA, "Green River Levee Freeboard Recommendations," September 1986.
61. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center (CETA 78-2), Revised Wave Runup Curves for Smooth Slopes, July 1978.
62. U.S. Department of the Army, Corps of Engineers, Coastal Engineering Research Center (CETA 79-1), Wave Runup on Rough Slopes, July 1979.
63. Jones and Associates, Inc., "Renton Village Company—1981 Aerial Mapping," Scale 1:600, Reduced to 1:1,200, Contour Interval 1 Foot, September 1981.
64. U.S. Department of the Army, Corps of Engineers, "Topographic Maps of the Green River and Vicinity," Scale 1:1,200, Reduced to 1:4,800, Contour Interval 2 Feet, 1980.
65. CH2M HILL, Inc., "Topographic Maps" Scale 1:4,800, Contour Interval 4 Feet, Big Soos Creek (1986), Bear Creek (1986), Swamp Creek (1986), May Creek (1986), Little Bear Creek (1986), Issaquah Creek (1986), Raging River (1986), Thornton Creek (1986), Longfellow Creek (1986), Cedar River (1986).
66. Kings County Engineering Department, River Valley Topography, Scale 1:2,400, Contour Interval 10 feet, Flood Control Division, Seattle, Washington, December 1961.
67. U.S. Department of the Interior, Geological Survey, Topographic Photo Maps, Scale 1:2,400, Contour Interval 5 feet: City of Bellevue, Washington, 1970.
68. King County Engineering Department, Flood Control Division, River Valley Topography, Scale 1:2,400, Contour Interval 5 feet: Seattle, Washington, December 1961.
69. King County Department of Public Works, Division of Hydraulics, Topographic Maps, Southwestern King County, Washington, Scale 1:2,400, Contour Interval 5 feet, June 1974.
70. Harry P. Jones and Associates, Topographic Maps, Scale 1:2,400, Contour Interval 5 feet: Kirkland, Washington (1967).
71. King County Engineering Department, Aerial Photography, Scale 1:2,400, Contour Interval 5 feet: Sections 3, 4, 9, and 10. T26N, R4E, WM, King County, Washington (1958), Revised (1965).

72. CH2M HILL, Inc., Contour Maps, Scale 1:1,200, Contour Interval 2 feet, Normandy Park, 1963.
73. U.S. Department of the Army, Corps of Engineers, Topographic Mapping of North Bend, Washington, Scale 1:2,400, Contour Interval 2 feet: Seattle, Washington (1978).
74. U.S. Department of the Army, Corps of Engineers, Topographic Maps, Scale 1:4,800, Contour Interval 5 feet: Pacific, Washington (1974).
75. Aerial Mapping Company, Topographic Maps, 1:2,400, Contour Interval 5 feet: Renton, Washington (1968).
76. Harstad Associates, Inc., Topographic Maps, Scale 1:2,400, Contour Interval 5 feet: Town of Skykomish, Washington (June 1979).
77. U.S. Army Corps of Engineers, Topographic Mapping, Scale 1:2,400, Contour Interval 2 feet: Snoqualmie, Washington (1978).
78. Walker and Associates, Topographic Map, Scale 1:2,400, Contour Interval 5 feet: Tukwila, Washington (1974).
79. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, King County, Washington, January 17, 1975.
80. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Auburn, Washington, Scale 1:4,800, February 18, 1977.
81. Federal Emergency Management Agency, Federal Insurance Administration, Flood Hazard Boundary Map, City of Bellevue, King County, Washington, August 2, 1974; revised August 13, 1976.
82. Federal Emergency Management Agency, Federal Insurance Administration, Flood Hazard Boundary Map, City of Kent, King County, Washington, April 22, 1977.
83. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Kirkland, Washington, September 12, 1975.
84. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of North Bend, Washington, Scale 1:9,600, May 7, 1976.

85. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Pacific, King County, Washington, Scale 1:9,600, December 26, 1975.
86. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Renton, King County, Washington, Scale 1:9,600, June 7, 1974.
87. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Town of Skykomish, King County, Washington, Scale 1:6,000, February 14, 1975.
88. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Snoqualmie, Washington, Scale 1:7,300, December 21, 1973.
89. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, City of Tukwila, Scale 1:12,000, May 24, 1974 (Revised September 13, 1977).
90. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Rate Map, City of Seattle, Washington, July 19, 1977.
91. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Rate Map, Town of Black Diamond, Washington, October 30, 1979.
92. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Bothell, Washington, unpublished.
93. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Town of Milton, Washington, February 17, 1982.
94. Federal Emergency Management Agency, Flood Insurance Study, King County and Incorporated Areas, revised September 29, 1989.
95. Northwest Hydraulic Consultants, Inc., Miller Creek Regional Stormwater Detention Facilities Design Hydrologic Modeling, Report for King County Division of Surface Water Management, Seattle, Washington, November 1990.
96. U.S. Environmental Protection Agency, Hydrologic Simulation Program – FORTAN (HSPF), USEPA Environmental Research Laboratory, Athens, Georgia, 1988.

97. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles Generalized Computer Program, Davis, California, September 1990.
98. U.S. Geological Survey, Roughness Characteristics of Natural Channels, U.S. Geological Survey Water Supply Paper 1849, Denver, Colorado, 1987.
99. Chow, V.T., Open-Channel Hydraulics, McGraw-Hill Book Company, Inc., New York, 1959.
100. Harper Righellis, Inc., King County Flood Boundary Work Map, Scale 1:2,400, Contour Interval 2 feet, December 20, 1993.
101. Hugh G. Goldsmith & Associates, Inc., Klahanie South Final Master Drainage Plan Update, prepared for Lowe Enterprises Northwest, Inc., March 1992.
102. Dinacola, R.S., Characterization and Simulation of Rainfall-Runoff Relations for Headwater Basins in Western King and Snohomish Counties, Washington, U.S. Geological Survey, Water Resources Investigations Report 89-4052, Tacoma, Washington, 1990.
103. City of Issaquah, Draft Supplemental Environmental Impact Statement for the I-90 Corporate Center and Southeast 56<sup>th</sup> Street Road Improvements, December 1992.
104. U.S. Army Corps, Hydrologic Engineering Center, HEC-2-Water-Surface Profiles, User's Manual, Davis, California, September 1990, Revised February 1991.
105. U.S. Geological Survey, Roughness Characteristics of Natural Channels, Water Supply Paper 1849, U.S. Geological Survey, Denver, Colorado, 1987, Williams, J.R., Pearson, H.E., and Wilson, J.D., Streamflow Statistics and Drainage-Basin Characteristics for the Puget Sound Regions, Washington, Volume II Eastern Puget Sound from Seattle to the Canadian Border, U.S. Geological Survey, Open-File Report 84-114-B, Tacoma, Washington, 1985.
106. U.S. Geological Survey, Guide for Selecting Manning's Roughness Coefficients for Natural Channels and Flood Plains, Water Supply Paper 2339, U.S. Government Printing Office, Washington, D.C., 1989.
107. Alpha Engineering Group, Inc., Avondale Road Improvement Project (Redmond City Limit to N.E. 132<sup>nd</sup> Street) Mitigation Plan for Floodplain Impacts, Report for King County Department of Public Works, Bothell, Washington, August 1992.

108. Entranco Engineers, Inc., Hydrologic Remodeling Report, Bear Creek, Report prepared for King County Surface Water Management Division, Bellevue, Washington, July 1993.
109. CH2M HILL, Supplemental Information for Request for Letter of Map Revision for Lower Bear Creek, in King County and the City of Redmond, Washington, submitted by the Washington Department of Transportation to King County Department of Public Works and City of Redmond Department of Public Works for their submittal to FEMA, Bellevue, Washington, August 1993.
110. Land Tech, Hydraulic Study, 100 Year Flood Elevations, Bear Creek, Hydraulic Analysis by G.R. Bob Parrott, Consulting Engineer, Topographic Survey by Jim Hart & Associates, 1986.
111. CH2M HILL, Analysis of Flood at Bear Creek Project 86-SD-25, Report to City of Redmond Public Works Department, Bellevue, Washington, July 1986.
112. CH2M HILL and Sajan, Inc., Hydraulic Report and Appendices A through F, SR 520, Old SR 901 Interchange to SR 202, Report for Washington State Department of Transportation, July 1993.
113. U.S. Geological Survey, Water Resources Data – Washington Water Year 1986, Water-Data Report WA-86-1, prepared by McGavock, E.H., Wiggins, W.D., Boucher, P.R., Blazs, R.L., Reed, L.L., and Smith, M.L., in cooperation with the State of Washington and other agencies, Water Resources Division, Pacific Northwest District, U.S. Geological Survey, Tacoma, Washington, 1988.
114. Chow, V.T., Open-Channel Hydraulics, McGraw-Hill Book Company, Inc., New York, 1959.
115. Montgomery Water Group, Inc., Letter of Map Revision for Lower Bear Creek at Redmond Town Center, City of Redmond, WA, Kirkland, Washington, July 1994, revised November 1994.
116. Montgomery Water Group, Inc., Redmond Town Center LOMR Supplemental Information, Report to City of Redmond Stormwater Division to satisfy the Appendix M requirements of the Community Development Guide, Kirkland, Washington, November 1994.
117. Montgomery Water Group, Inc., Letter of Map Revision and Conditional Letter of Map Revision for Lower Bear Creek at Redmond Town Center, City of Redmond, WA, Supplemental Information for City of Redmond

Community Development Guide, Appendix M, Kirkland, Washington, November 1994, revised May 1994.

118. Federal Emergency Management Agency, Flood Insurance Study, Snohomish County, Washington and Incorporated Areas, Washington, D.C., November 8, 1999.
119. U.S. Environmental Protection Agency, Environmental Research Laboratory, Hydrologic Simulation Program-FORTRAN (HSPF); User's Manual for Release 8.0, EPA 600/3-84-066, Athens, Georgia, 1984.
120. City of Bothell, Department of Public Works, Topographic Map, Scale 1:4,800, Contour Interval 2 feet, Bothell, Washington, 1991.
121. Northwest Hydraulic Consultants, Inc., North Creek, Bothell, Washington, Limited Map Maintenance Study, Work Map, Scale 1:24,000, Contour Interval 2 feet, undated.
122. City of Bothell, Engineering Study, Horse Creek Drainage Area, May 1965.
123. Harper Righellis, Inc., King County Flood Boundary Work Map, Scale 1:2,400, Contour Interval 2 feet, October 17, 1996.
124. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-REGFRQ, Regional Frequency Computation, Computer Program, Davis, California, September 1989.
125. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-FFA, Flood Frequency Analysis, Computer Program, Version 3.1, Davis, California, February 1985.
126. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, Computer Program, Version 2.1, Davis California, October 1997.
127. Harper Righellis, Inc., King County Flood Boundary Work Map, Scale 1:2,400, Contour Interval 2 feet, March 31, 1997.
128. U.S. Army Corps of Engineers, Seattle District, Topographic Map, Scale 1:24,000, Contour Interval 4 feet, March 1998.
129. U.S. Army Corps of Engineers, Seattle District, Draft Detailed Project Report and Environmental Assessment for the Snoqualmie River at Snoqualmie Flood Damage Reduction Study in King County, Washington, January 1999, (draft).

130. Harper Righellis, Inc., South Fork Snoqualmie River, Hydrology and Hydraulics Report, Prepared for King County, Surface Water Management Division, March 13, 1997.
131. U.S. Geological Survey, Guide for Selected Manning's Roughness Coefficients for Natural Channels and Flood Plains, Water-Supply Paper 2339, U.S. Government Printing Office, 1989.
132. U.S. Geological Survey, Roughness Characteristics of Natural Channels, Water-Supply Paper 1849, U.S. Government Printing Office, 1987.
133. Harper Houf Righellis Inc., Technical Support Data Notebook for the Cities of North Bend and Snoqualmie and King County, Washington, Upper Snoqualmie Flood Plain Flood Insurance Study, October 21, 2001.
134. URS Greiner Woodward Clyde, Tollgate Final Environmental Impact Statement Report, Vol. 1 and 2, June 1, 2000.
135. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, Computer Program, Version 2.2, Davis California, September 1998.
136. Harper Houf Righellis Inc., Upper Snoqualmie Floodplain Flood Insurance Study Work Maps, Scale 1:2,400, October 2001.
137. U.S. Oceanic and Atmospheric Administration, National Geodetic Survey, Vertcon Conversion Program, Version 6.0.1, 2006.
138. Montgomery Water Group, Inc. Revisions to FEMA Flood Insurance Study, Issaquah Creek and East Fork Task 5 Memorandum – Hydrology Update to April 28, 2000, Memo to Kerry Ritland, City of Issaquah, May 24, 2001.
139. King County, City of Issaquah, and Washington State Department of Ecology, Issaquah Creek Basin Current/Future Condition and Source Identification Report, King County Surface Water Management Division Department of Public Works, City of Issaquah Department of Public Works, Washington State Department of Ecology Water Quality Financial Assistance Program. Seattle, Washington, October 1996.
140. U.S. Army Corps of Engineers, Hydrologic Engineering Center, FEC-FFA Version 3.1. Davis, California, February 1995.
141. U.S. Department of Interior, Office of Water Data Coordination, Geological Survey, Guidelines for Determining flood Flow Frequency Bulletin 17 B, Revised September 1981.



142. United States Department of Interior, Geological Survey, Magnitude and Frequency of Floods in Washington. Water-Resources Investigations Report 97-4277, 1998.
143. Montgomery Water Group, Inc., Issaquah Creek FIS Revisions-Lower Mainstem Overflow Analysis Summary, Update to April 20, 2001 Memo to Kerry Ritland, City of Issaquah, May 24, 2001.
144. U.S. Army Corps of Engineers, Hydrologic Engineering Center. HEC-RAS, Version 3.0.1, Davis, California, March 2001.
145. Montgomery Water Group, Inc., Bridge and Channel Improvements and Status Update, March 20, 2001.
146. Montgomery Water Group, Inc., Issaquah Creek FIS revisions Draft Work Maps, Scale 1:4,800, August 2001.
147. Hydrologic Engineer Center (HEC), April 2004. HEC-RAS River Analysis System Computer Program, version 3.1.2.
148. United States Army Corps of Engineers (USACE), 2004. Cedar River at Renton Flood Damage Reduction Operation and Maintenance Manual: Cedar River Section 205 (Renton, Washington).
149. King County, March 2000. Memorandum re: Flood Frequency Curve for Year 2000 Floodplain Mapping on the Cedar River. David Hartley, Senior Watershed Hydrologist.
150. United States Army Corps of Engineers (USACE), June 1997. Final Detailed Project Report and Environmental Impact Statement: Cedar River Section 205 (Renton, Washington).
151. United States Geological Survey (USGS), 1987, Roughness Characteristics of Natural Channels, U.S. Geological Survey Water Supply Paper 1849, USGS, Denver, Colorado.

U.S. Department of Agriculture, Soil Conservation Service, Flood Hazard Analyses, Tolt River, King County, Washington.

U.S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 feet, Bothell, Washington, 1953 (Photorevised 1981); Kirkland, Washington, 1950 (Photorevised 1968 and 1973).

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-DSS, User's Guide and Utility Manuals, User's Manual, Davis, California, October 1994.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, STATS, Statistical Analysis of Time-Series Data, Computer Program, Davis, California, May 1997.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, STATS, Statistical Analysis of Time-Series Data, Input Description, Davis, California, May 1987.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-FFA, Flood Frequency Analysis, User's Manual, Davis, California, May 1992.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, Regional Frequency, User's Manual, Davis, California, July 1972.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, UNET, One-Dimensional Unsteady Flow Through a Full Network of Open Channels, Computer Program, Version 3.2.0, Davis, California, August 1997.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, User's Manual, Version 2.0, Davis, California, April 1997.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, Hydraulic Reference Manual, Version 2.0, Davis, California, April 1997.

U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS, River Analysis System, Application's Guide, Version 2.0, Davis, California, April 1997.

King County, Surface Water Management Division, Basin Planning Program Sediment Transport Along the South Fork and Mainstem of the Snoqualmie River, June 1991.

Converse Consultants, NW, Report on Geotechnical Services, Snoqualmie Falls Hydroelectric Project, Snoqualmie, Washington, Prepared for Puget Sound Power and Light Company, October 1991.

Horton Dennis and Associates, Inc., South Fork Snoqualmie River, Aerial Mapping and Flood Plain Analysis, King County Surface Water Management, Harper Righellis, Inc., Temporary Benchmarks, August 1995.

Northwest Hydraulics, Inc., Snoqualmie River Flood Control Project, Pre-Feasibility Investigation Final Report, Prepared for King County, Surface Water Management Division, March 1996.

King County, Surface Water Management Division, Environmental Assessment, Reif Road Project, FEMA DR-833-WA, May 24, 1996.

King County, Department of Public Works, Surface Water Management Division, River Management Section, Reif Road Flood Hazard Reduction Project, Design Report, Draft, July 31, 1995.

King County, Engineering Department, Flood Control Division, Snoqualmie River Valley Topography, Scale 1:2,400, Contour Interval 5 feet, December 1961.

U.S. Geological Survey, North Bend, Washington 7.5-Minute Quadrangle Map, Scale 1:24,000, Contour Interval 40 feet, 1993.

U.S. Geological Survey, Snoqualmie, Washington 7.5-Minute Quadrangle Map, Scale 1:24,000, Contour Interval 20 feet, 1953, Photorevised 1968.

Montgomery Water Group, Inc., Preliminary Review Draft, Tollgate EIS, Hydraulics Model Study of South Fork Snoqualmie River and Gardiner Creek, September 1997.

Montgomery Water Group, Inc., Appendix, Hydraulic Modeling Analysis of South Fork Snoqualmie River and Gardiner Creek, Tollgate Preliminary Draft EIS, December 1997.

Montgomery Water Group, Inc., Middle Fork Snoqualmie River Overflow Work Map, November 1997.

King County, Surface Management Division, Preliminary Work Maps for Middle Fork Snoqualmie River, Prepared by Harper Righellis, Inc.

U.S. Army Corps of Engineers, Seattle District, Snoqualmie River Flood Insurance Study Drawings, 1971.

City of Issaquah. 2000. City of Issaquah Comprehensive Plan. Adopted 1995 and amended in 2000. City of Issaquah Planning Department, Issaquah, Washington.

Federal Emergency Management Agency. September 29, 1989. Flood Insurance Study for King County, Washington and Incorporated Areas. FEMA Region X.

King County and Issaquah/East Lake Sammamish Watershed Management Committee. December 1996. Final Issaquah Creek Basin and Nonpoint Action Plan. King County Department of Natural Resources, Seattle, Washington.

Montgomery Water Group, Inc. September 25, 2001. FEMA FIS Elevation and Discharge Comparison Memorandum.

Montgomery Water Group. April 30, 1996. Preliminary Hydraulic Modeling Analysis of Issaquah Creek for Proposed Basin Flood Control Program. Prepared for RH2 Engineering, Inc., and City of Issaquah Public Works Department. Kirkland, Washington.

## **10.0 REVISION DESCRIPTIONS**

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study was printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood hazard data located at the Department of Land and Water Resources, 201 South Jackson Street, Suite 600, Seattle, Washington 981-3855.

### **10.1 First Revision**

The purpose of this revision is to update the corporate limits of the City of Bothell and to add floodplain information for Miller Creek that affects the unincorporated areas of King County, Washington (Reference 94), and then incorporated Cities of Normandy Park (Reference 11) and SeaTac. Approximately 4.0 miles of Miller Creek were studied by detailed methods. The revised floodplain along North Creek shown within the City of Bothell is for information only. For flood insurance purposes, refer to the separately published Flood Insurance Rate Map. Detailed information regarding this revision is presented throughout the main body of this FIS report.

The information for this restudy of Miller Creek supersedes the data presented in the previous Flood Insurance Study for King County, dated September 29, 1989 (Reference 94). The discharges used in this study of Miller Creek were revised to account for the effects of urbanization and operations of the newly constructed Lake Reba Detention Pond. This restudy was completed in September 1991.

### **10.2 Second Revision**

This study was revised on May 16, 1995, to incorporate the results of an analysis of existing hydraulic studies that was performed for the

Snoqualmie River in the vicinity of the City of Snoqualmie. The analysis was performed by NHC, the study contractor, for FEMA under Contract No. EMW-90-L-3134, as part of its Limited Map Maintenance Program.

In addition to the analysis for existing hydraulic studies that was performed for the Snoqualmie River, this revision also identifies that the mapping for King County has been prepared using digital data. Previously published Flood Insurance Rate Map data produced manually have been converted to vector digital data by a digitizing process. These vector data were fit to raster digital images of the USGS quadrangle maps of the county area to provide horizontal positioning.

Road, highway names, and centerline data have been obtained from an enhanced TIGER (Topologically Integrated Geographic Encoding and Referencing) File, obtained through the King County Computer and Communications Services Division. For county areas outside of the City of Seattle, the centerlines were modified to the positional accuracy of the USGS quadrangle maps, and the roads, highways, and street names, if needed, were taken from the Flood Insurance Rate Map panels, where appropriate. The adjusted centerline data were then computer plotted with the digitized floodplain data to produce the countywide Flood Insurance Rate Map panels.

The ERM descriptions are now included on the individual Flood Insurance Rate Map panels. This information has been removed from the text. Also, several additional incorporated areas have been identified in this update. They are the Cities of Algona, Burien, Bothell, Federal Way, Hunts Point, Medina, Mercer Island, Woodinville, and Yarrow Point and the Town of Clyde Hill and Beaux Arts Village.

The LOMR issued on December 18, 1990, for the City of North Bend, to show the effects of more detailed hydrologic/hydraulic information along the Snoqualmie River, was included in this update. As a result of more detailed hydrologic/hydraulic information, the floodway was revised along the Snoqualmie River throughout the corporate limits of the City of North Bend.

The LOMR issued on May 13, 1992, for the unincorporated areas of King County, to show the effects of more detailed topographic information adjacent to the Sammamish River, was included in this update. As a result of the more detailed topographic information, the 100-year floodplain boundary was revised to exclude the K & S Business Park from the 100-year floodplain.

The LOMRs issued on April 28, 1994, for the City of Redmond and the unincorporated areas of King County, to show the effects of more detailed

hydrologic/hydraulic information along Bear Creek, were included in this update. As a result of the more detailed hydrologic/hydraulic information, the Flood Insurance Rate Map was revised to modify elevations, floodplain and floodway boundary delineations, and zone designations along Bear Creek from its confluence with the Sammamish River to State Highway 202 (Redmond Way). In addition, a Flood Profile Panel was included for the Bear Creek Overflow Channel.

### **10.3 Third Revision**

This study was revised on May 20, 1996, to incorporate the results of detailed hydrologic and hydraulic analyses of the Raging River affecting King County, Washington. The revised analyses for the reach of the Raging River from its confluence with the Snoqualmie River to approximately 0.6 mile upstream of Interstate Highway 90 (I-90) (downstream reach) were performed by Harper Righellis, Inc., Portland, Oregon, for the King County Surface Water Management Division. The revised analyses for the reach from approximately 0.6 mile upstream of I-90 to approximately 0.3 mile upstream of the second Upper Preston Road bridge (upstream reach) were performed by FEMA. This work was completed in March 1995. Detailed information regarding this revision is presented throughout the main body of this FIS report.

### **10.4 Fourth Revision**

This study was revised on March 30, 1998, to incorporate the results of detailed hydrologic and hydraulic analyses of North Fork Issaquah Creek in the City of Issaquah, Bear and Evans Creeks in the City of Redmond, South Fork Skykomish River in the Town of Skykomish and the unincorporated areas of King County, and the Middle and North Fork Snoqualmie Rivers in the unincorporated areas of King County. This study also incorporates the results of an approximate analysis of Tate Creek in the unincorporated areas of King County. Detailed information regarding this revision is presented throughout the main body of this FIS report.

### **10.5 Fifth Revision**

This study was revised on November 8, 1999, to incorporate the Flood Insurance Study information and data for the City of Bothell into the Flood Insurance Study report for King County, Washington and Incorporated Areas. The City of Bothell is located in the Puget Sound region of northwestern Washington, approximately 3.5 miles northeast of the City of Seattle. The City of Bothell is a bi-county community within King and Snohomish Counties. Because the Flood Insurance Rate Map and Flood Insurance Study report for Snohomish County, Washington and

Incorporated Areas is being published in a countywide format (Reference 118), the portions of the City of Bothell that lie within King County are included on the Flood Insurance Rate Map for King County, and the portions of the City of Bothell that lie within Snohomish County are included on the Flood Insurance Rate Map for Snohomish County. Detailed information regarding this revision is presented throughout the main body of this FIS report.

This study has also been revised to incorporate Letters of Map Revision (LOMRs) issued on March 3, 1995 (Case Nos. 94-10-053P and 94-10-067P), and July 5, 1995 (Case No. 95-10-41P). The March 3, 1995, LOMR revised Flood Insurance Rate Map Panel 0007 C, dated March 2, 1994, to show the effects of a private flood protection system along North Creek from just upstream of I-405 to just downstream of Monte Ville Parkway.

#### **10.6 Sixth Revision**

This study was revised on December 6, 2001, to incorporate the results of detailed hydrologic and hydraulic analyses of Tolt River in the Town of Carnation and the unincorporated areas of King County; and the South Fork Snoqualmie River from Interstate 90 (I-90) to approximately 4,000 feet upstream of 468<sup>th</sup> Avenue. Detailed information regarding this revision is presented throughout the main body of this FIS report.

The USACE restudy for the South Fork Snoqualmie River covers the mainstem of the Snoqualmie River from Meadowbrook Bridge to the confluence of the Middle and South Fork. The hydraulic analysis of the South Fork Snoqualmie River upstream of I-90 was initially performed by Harper Righellis, Inc., Portland, Oregon, for the King County Surface Water Management Division. The data prepared by Harper Righellis were incorporated into the analysis performed by the USACE and revised where necessary.

The USACE restudy was requested because the USACE, Seattle District, determined that the levees on the South Fork do not meet FEMA's current standards for providing protection from the 100-year flood.

#### **10.7 Seventh Revision**

This FIS was revised on April 19, 2005, to incorporate the results of revised hydraulic analysis of Snoqualmie River main stem, South Fork and Middle Fork of the Snoqualmie River, performed by Harper Houf

Righellis Inc., completed in October 2001. This revision affects the Cities of North Bend and Snoqualmie, and the unincorporated areas of King County, Washington.

In addition, this revision will incorporate the results of a revised hydrologic and hydraulic analysis of Issaquah Creek, East Fork Issaquah Creek, and Gilman Boulevard Overflow of Issaquah Creek, performed by Montgomery Water Group Inc., completed in August 2001. This revision affects the City of Issaquah, and the unincorporated areas of King County, Washington.

This revision will incorporate the results of a revised hydraulic analysis of Tibbetts Creek performed by Concept Engineering, Inc. This revision affects the City of Issaquah, and the unincorporated areas of King County, Washington. Detailed information regarding this revision is presented throughout the main body of this FIS report.

### **Tibbetts Creek LOMR**

The LOMR issued on February 23, 2005, for the City of Issaquah and the unincorporated areas of King County, to show the hydraulic effects of the channel relocation and fill along Tibbetts Creek, was included in this update. As a result of the channel relocation, fill and more detailed topographic information, the Flood Insurance Rate Map, Flood profiles, and Floodway Data Tables were revised to modify elevations, floodway data, and floodplain and floodway boundary delineations along Tibbetts Creek from approximately 150 feet upstream of I-90 (eastbound) to approximately 700 feet downstream of Newport Way Northwest.

## **10.8 Eighth Revision**

This FIS was revised on {date to be determined}, to incorporate the results of revised hydraulic analysis of Cedar River, Paterson Creek, Snoqualmie River, and Springbrook Creek.

In addition, this revision converts all NGVD29 elevations to NAVD88. All elevations shown on the Flood Insurance Rate Map, Flood Profiles, and Floodway Data tables are referenced to NAVD88. Refer to section 3.3 Vertical Datum for a more detailed explanation of the datum conversion including datum conversion factors used for King County.

**Cedar River Study** - The purpose of this revision is to prepare a flood study of Cedar River. The revised floodplain and floodway maps will reflect the current hydraulic and hydrologic conditions of the rivers and will replace the effective maps which were prepared prior to the 1980s.



The hydrologic and hydraulic analyses for this study were prepared by Northwest Hydraulic Consultants Inc. (NHC) for the City of Renton. Agencies contacted for information relevant to this study included: the City of Renton, King County Department of Natural Resources-Water and Land Resources Division, and the United States Army Corps of Engineers-Seattle District (USACE).

This report describes an investigation of riverine flooding along the Cedar River within the city of Renton, Washington. The study reach begins at the river outlet at Lake Washington and extends 5.36 miles upstream to the Renton City Limits at 149<sup>th</sup> Avenue Southeast. The purpose of this study is to update the existing FEMA Flood Insurance Study (FIS) for King County, Washington and Incorporated Areas (FEMA, November 1999) to reflect current hydraulic conditions along the Cedar River using higher revised peak discharges and updated geometry

**Patterson Creek** - The purpose of this revision is to prepare a flood study of Patterson Creek. The revised floodplain and floodway maps will reflect the current hydraulic and hydrologic conditions of the rivers and will replace the effective maps which were prepared prior to the 1980s.

This study was completed by Northwest Hydraulic Consultants, Inc. (NHC) under contract to King County Department of Natural Resources and Parks (KCDNRP). The County is a Cooperating Technical Partner (CTP) with the Federal Emergency Management Agency (FEMA) for purposes of conducting flood insurance studies. King County provided project management and technical review of all study products. The County also supplied relevant study data including hydrometric data for the Patterson Creek watershed and information on past watershed flooding.

**Snoqualmie River Study** - The purpose of this revision is to update the lower Snoqualmie River. The revised floodplain and floodway maps will reflect the current hydraulic and hydrologic conditions of the rivers and will replace the effective maps which were prepared prior to the 1980s.

This study was completed for FEMA at the request of King County. The County served as Cooperating Technical Partners (CTP), providing relevant study data, first-hand information on the watersheds and associated flooding issues, and technical review of all study products. King County also served in the role of Project Manager and contracted with Northwest Hydraulic Consultants, Inc. (NHC) to provide technical analyses for the FIS updates.

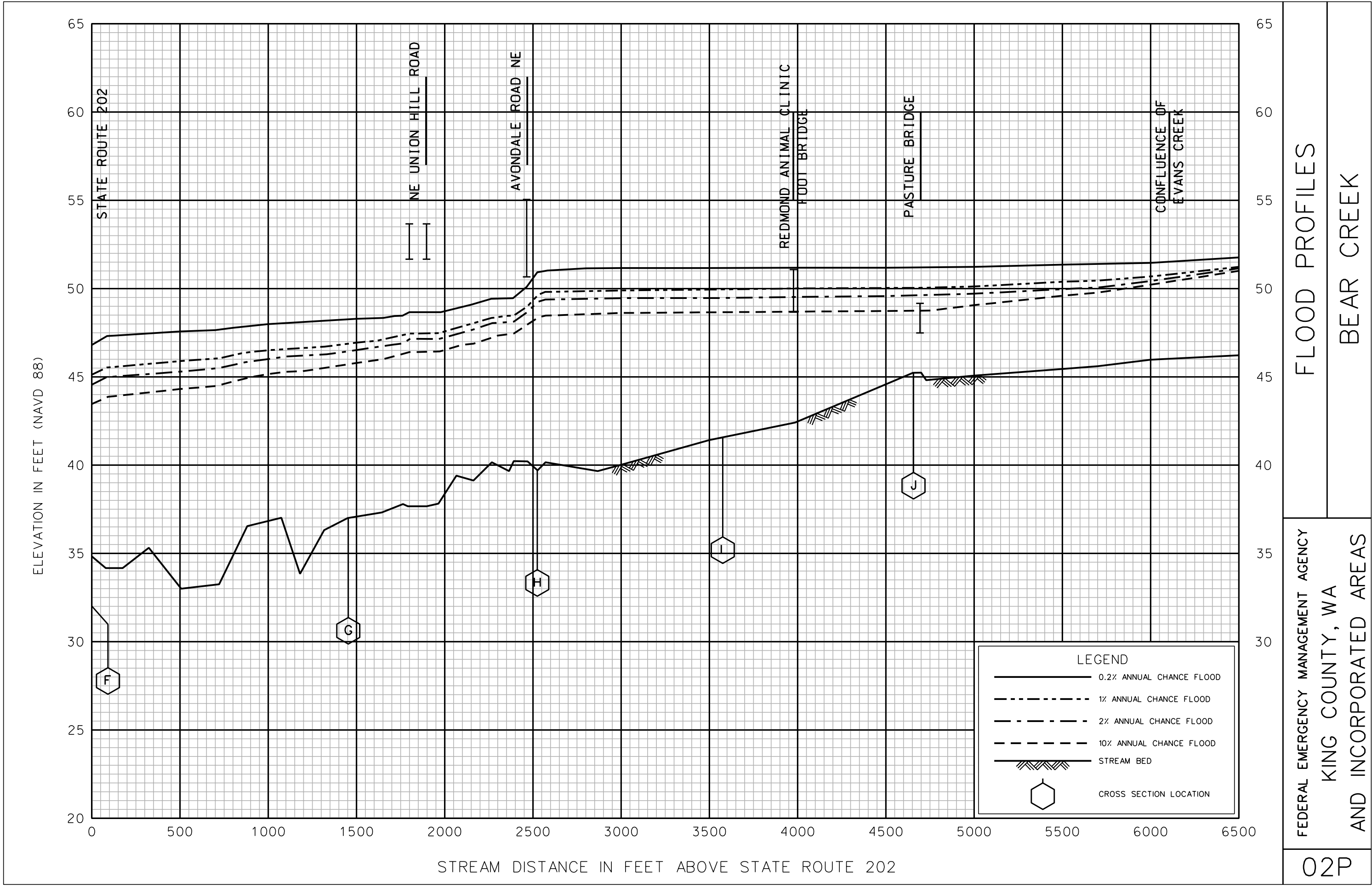
**Springbrook Creek Study** - The purpose of this revision is to update Springbrook Creek between the Black River Pump Station (BRPS) and SW

43<sup>rd</sup> Street (also referred to as South 180<sup>th</sup> Street). The revised floodplain and floodway maps will reflect the current hydraulic and hydrologic conditions of the rivers and will replace the effective maps which were prepared prior to the 1980's.

The hydraulic and hydrologic analyses for this study were conducted following the approach described in an earlier memorandum by Northwest Hydraulics, Inc. (NHC). This approach was reviewed and approved by the FEMA Map Coordination Contractor in a letter to the City of Renton, dated September 25, 2002. Continuous hydrologic simulation modeling for a 53 year period of record (October 1, 1948 through September 30, 2002) was used to identify and adjust storm inflow hydrographs to Springbrook that correspond to recurrence intervals required for unsteady flow hydraulic modeling and subsequent floodplain mapping. Two types of potential flood generating peak events were identified for hydraulic analysis: a Storage Scenario, which includes events that produce very high water surface elevation at the Black River Pump Station due to pumping restrictions caused by high flows in the Green River, and a Conveyance Scenario which includes events that exhibit maximum peak flows into the pump station forebay. This study was completed in June 2006.

**Green River Study** - The Green River floodplain was redelineated from cross-section V through DZ based on the Green River (Without Levee) regulatory base flood water surface elevations in the King County FIS. The without levee flood water surface elevations were compared to the surrounding topography assuming that levees and levee-type structures would not prohibit water from leaving the river channel. One exception was that the Tukwila 205 levee was considered to provide protection from flooding. Topography data from 2006 was used to perform the comparison. The Mill Creek floodway and storage floodway were preserved and shown on the map. Additionally, the floodway from the Springbrook Creek restudy was shown on the map. Otherwise, Green River floodplain inundation of the Mill and Springbrook Creeks floodplains was shown. The Green River floodplain was shown as an AE-zone with BFEs.

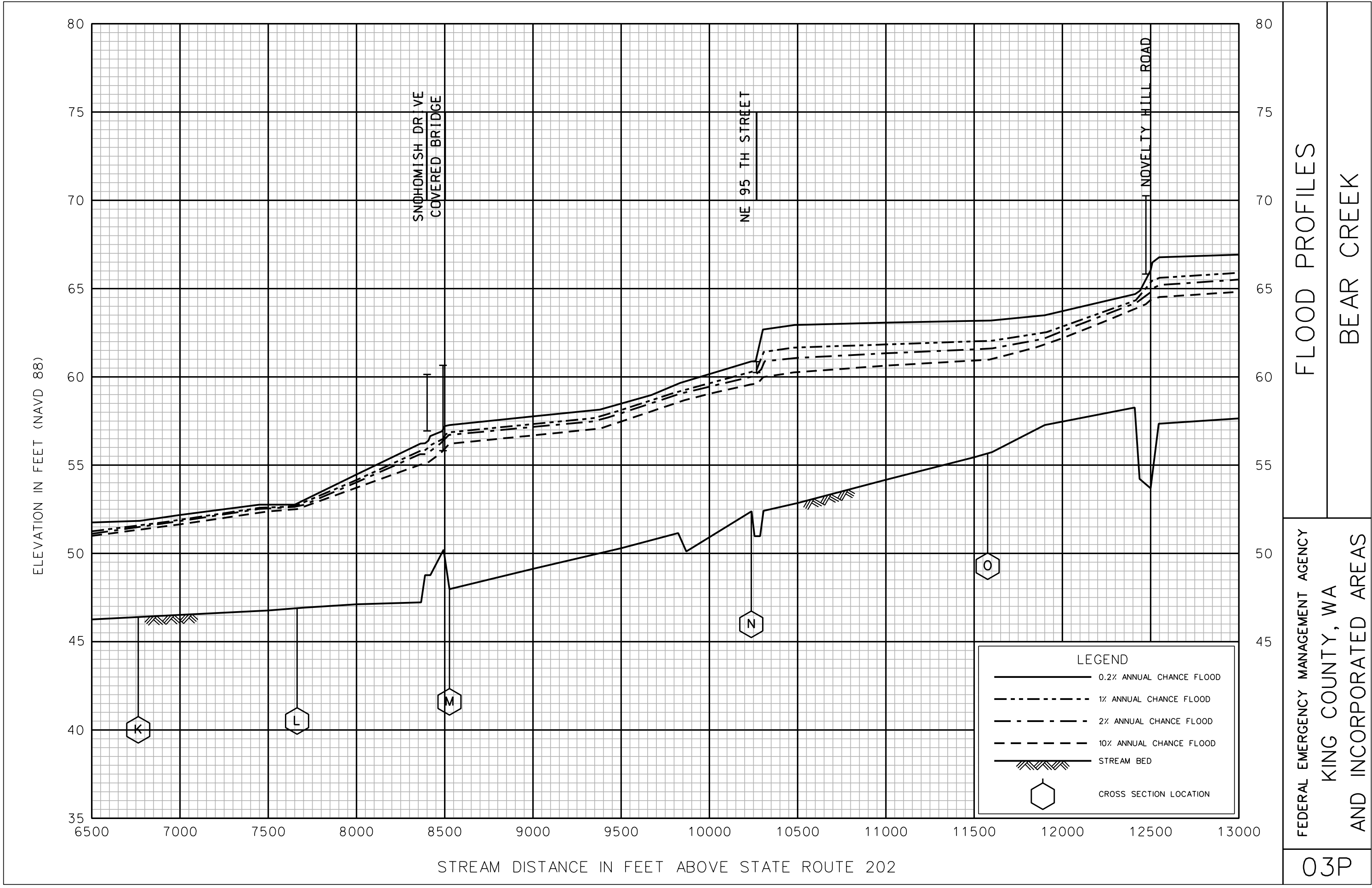




FLOOD PROFILES

BEAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS



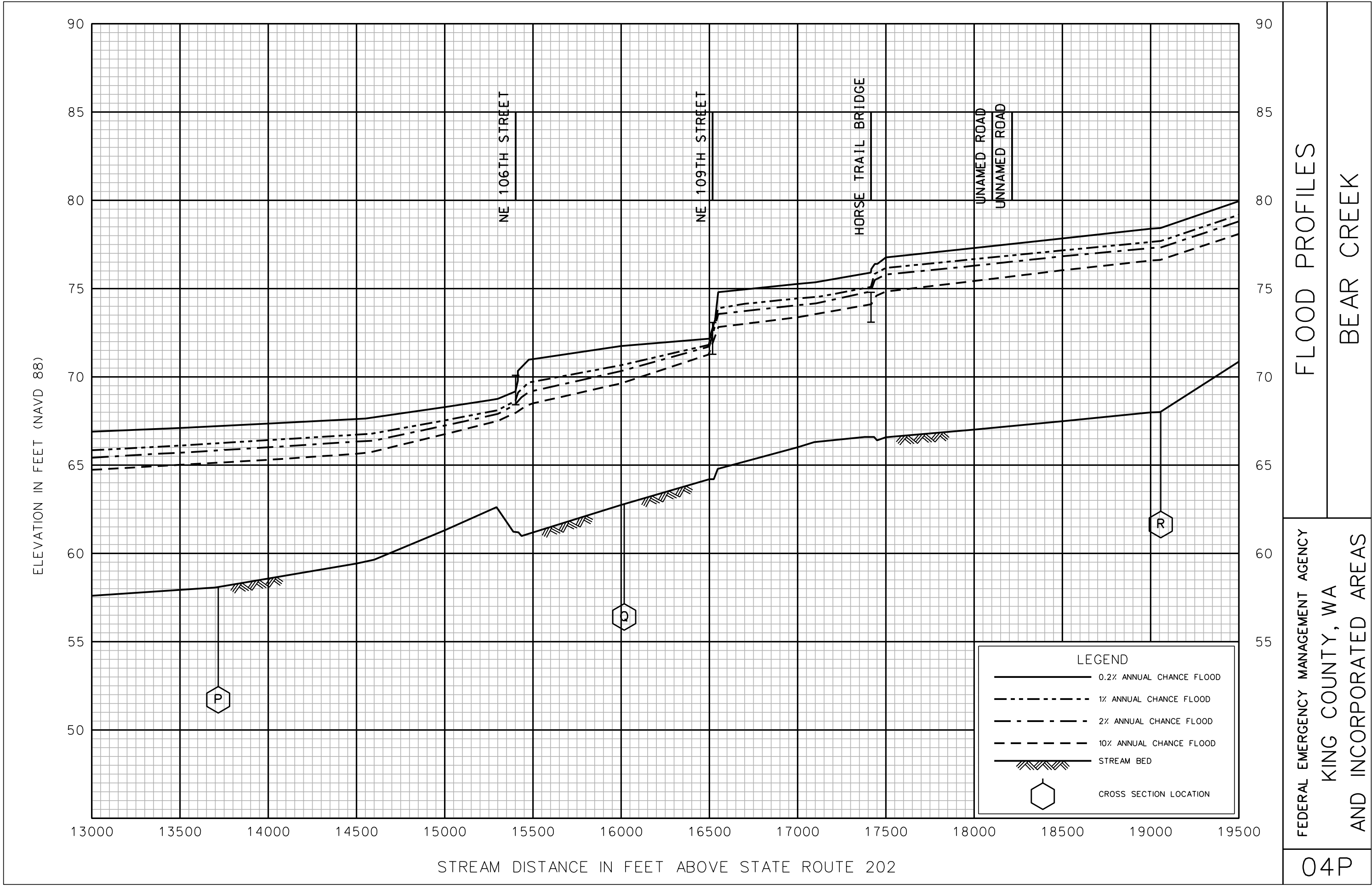
FLOOD PROFILES

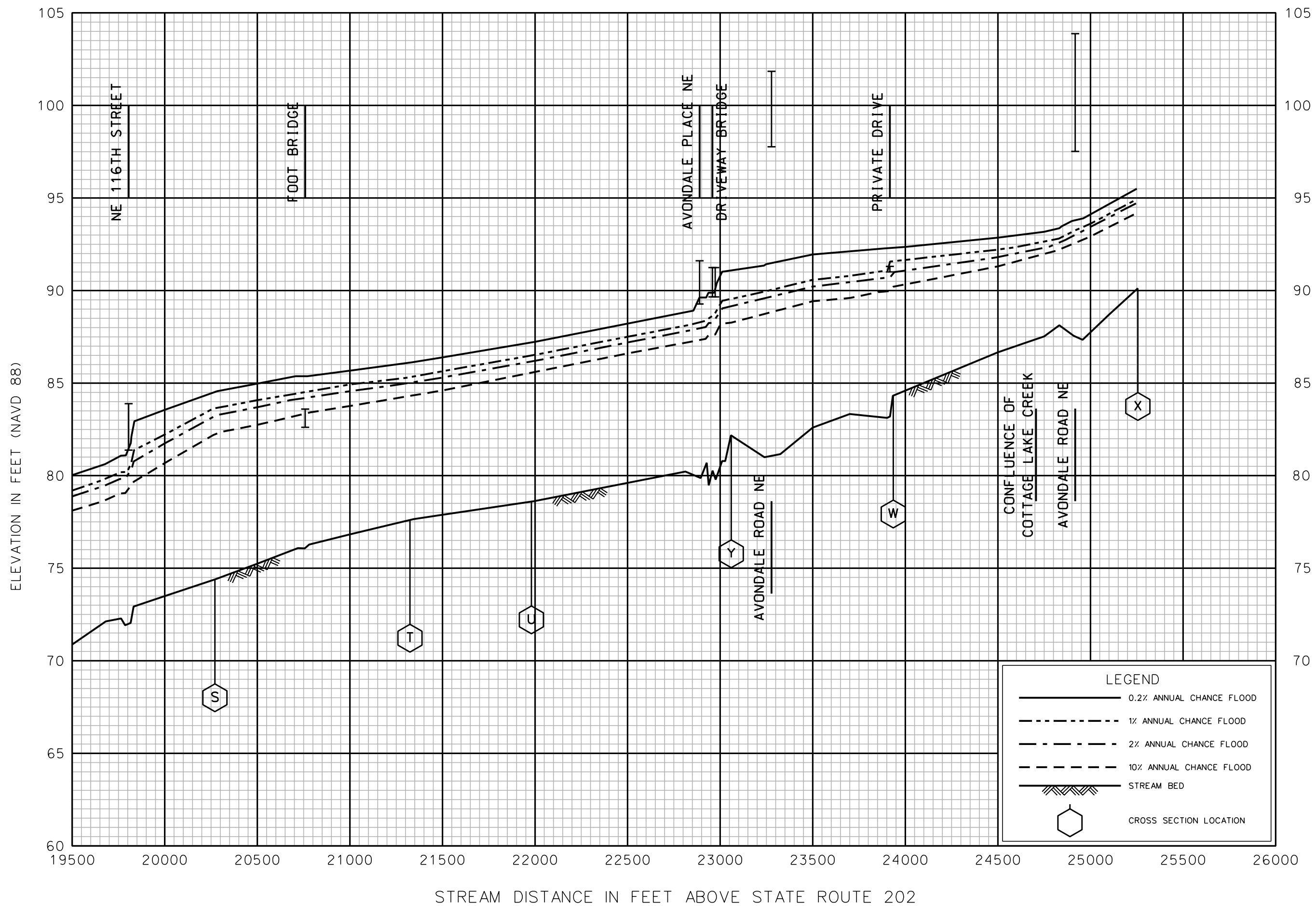
BEAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

KING COUNTY, WA

AND INCORPORATED AREAS





## FLOOD PROFILES

BEAR CREEK

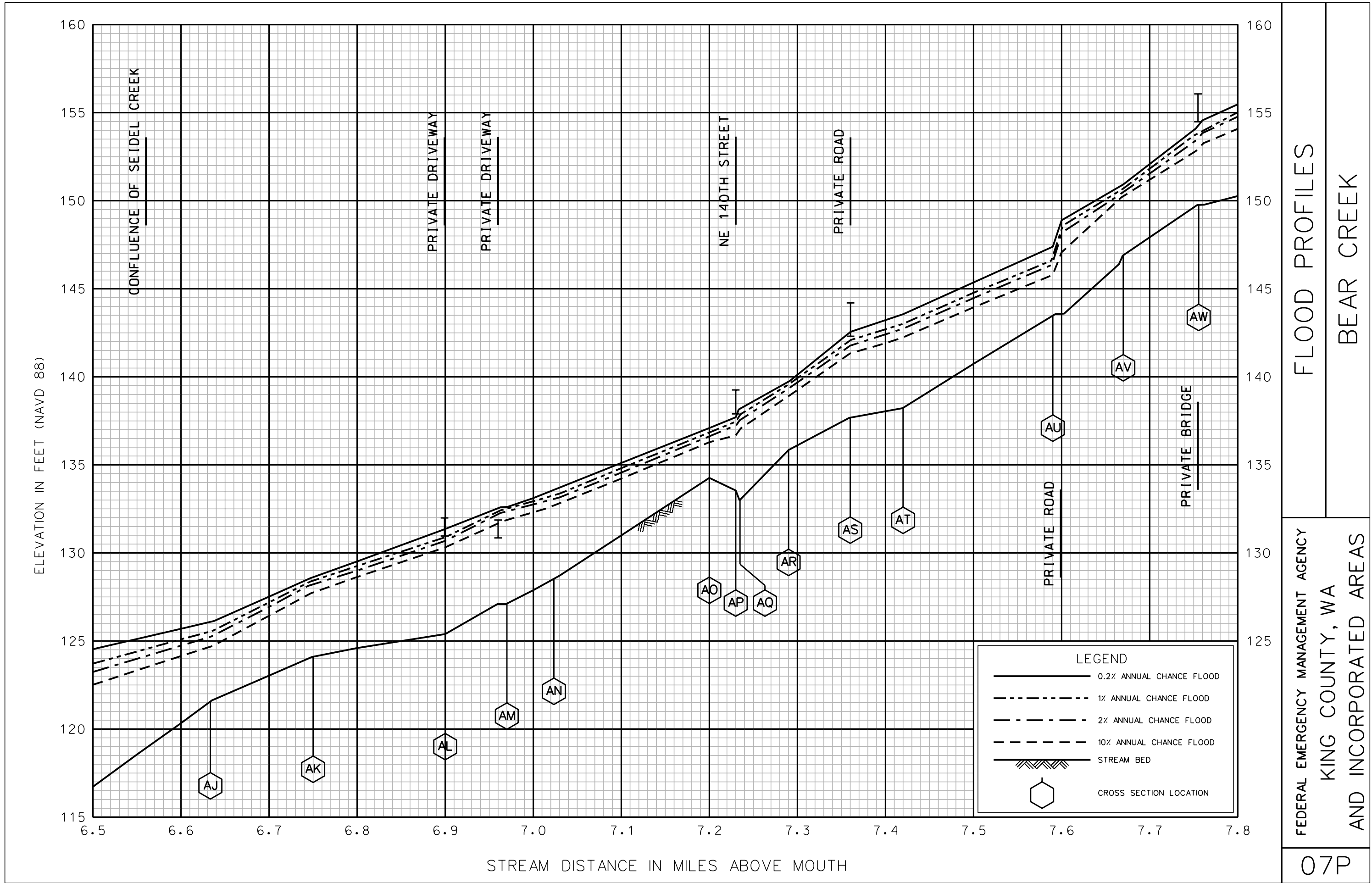
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

---

05P







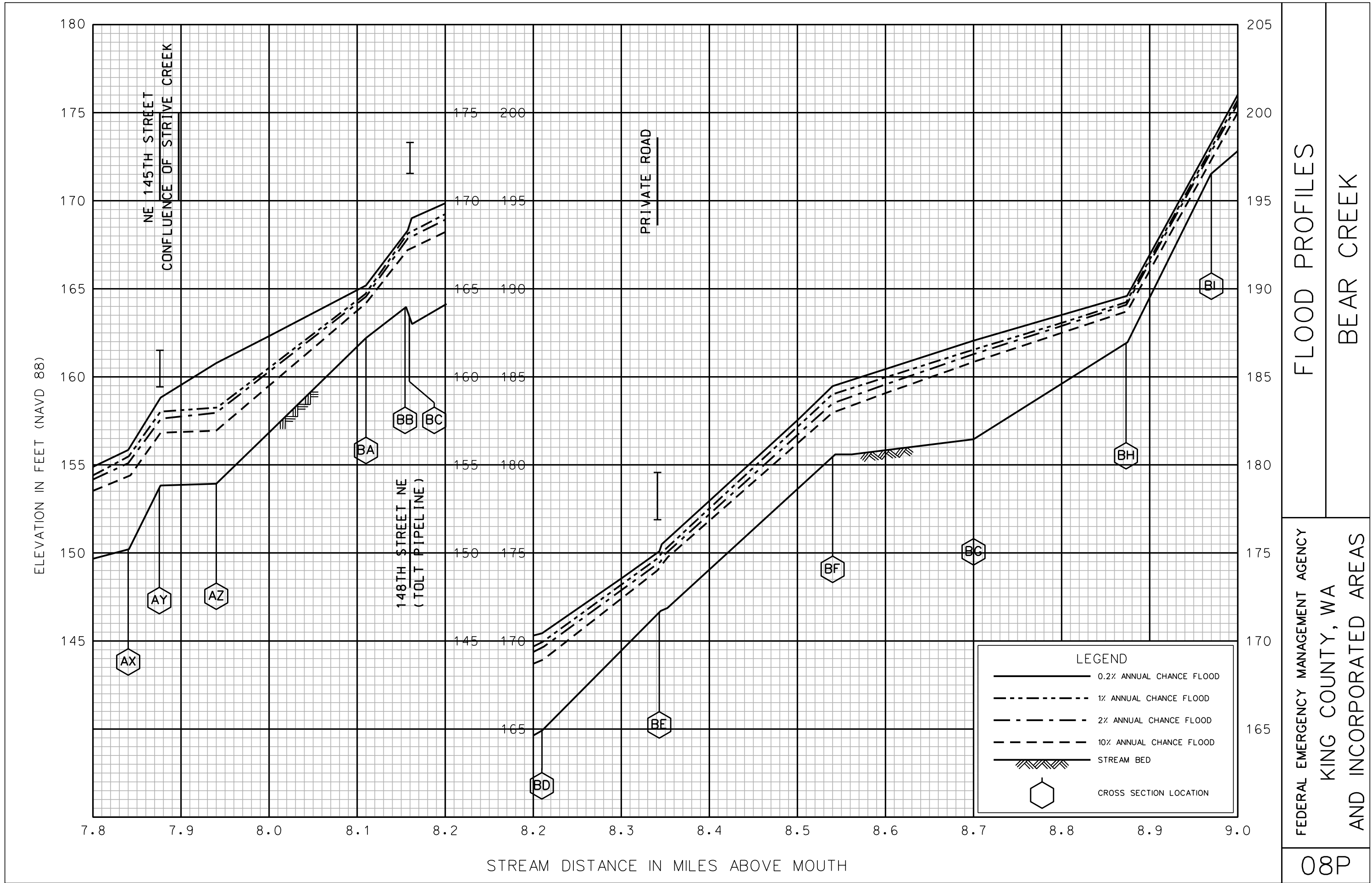
FLOOD PROFILES

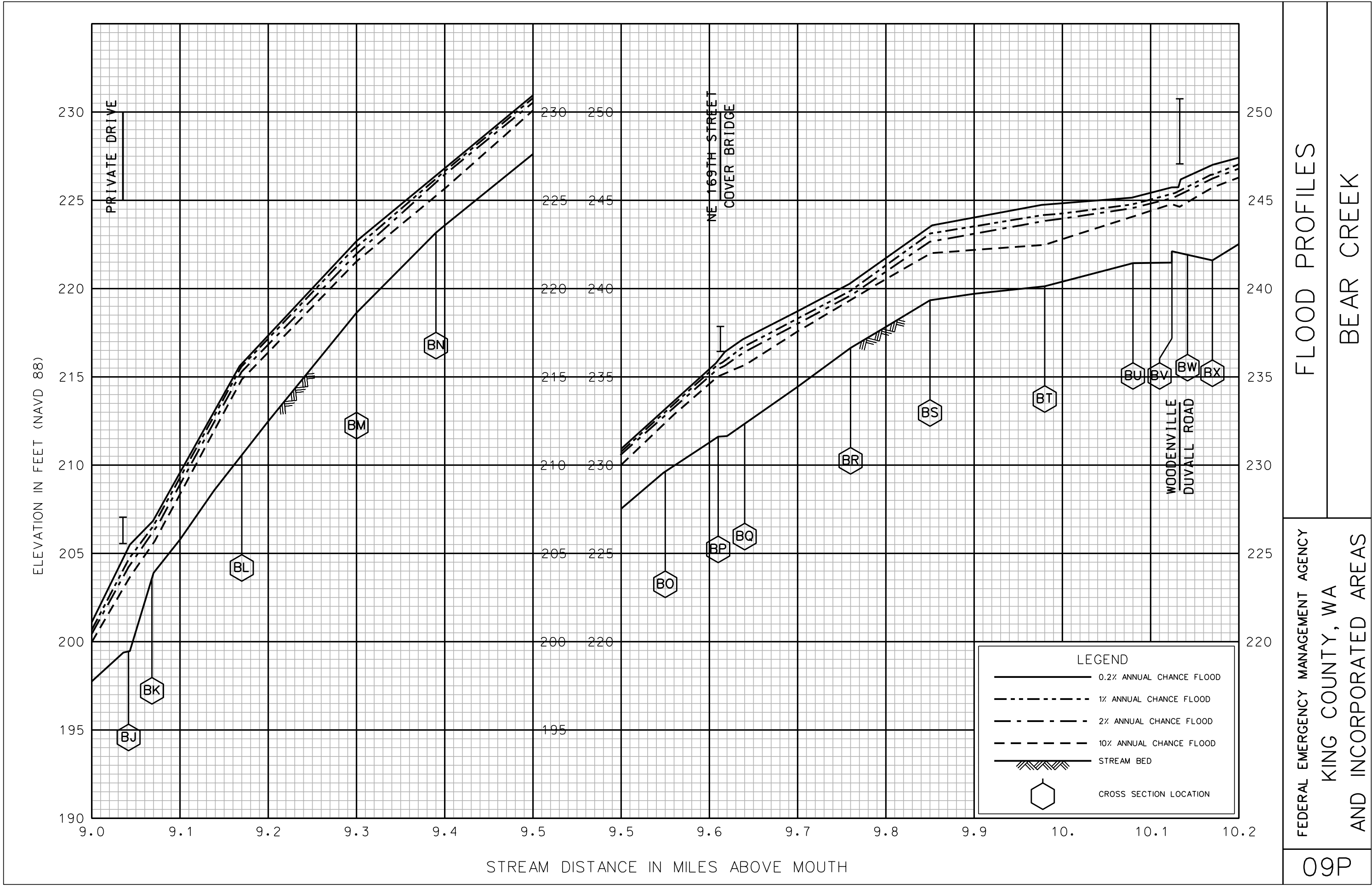
BEAR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

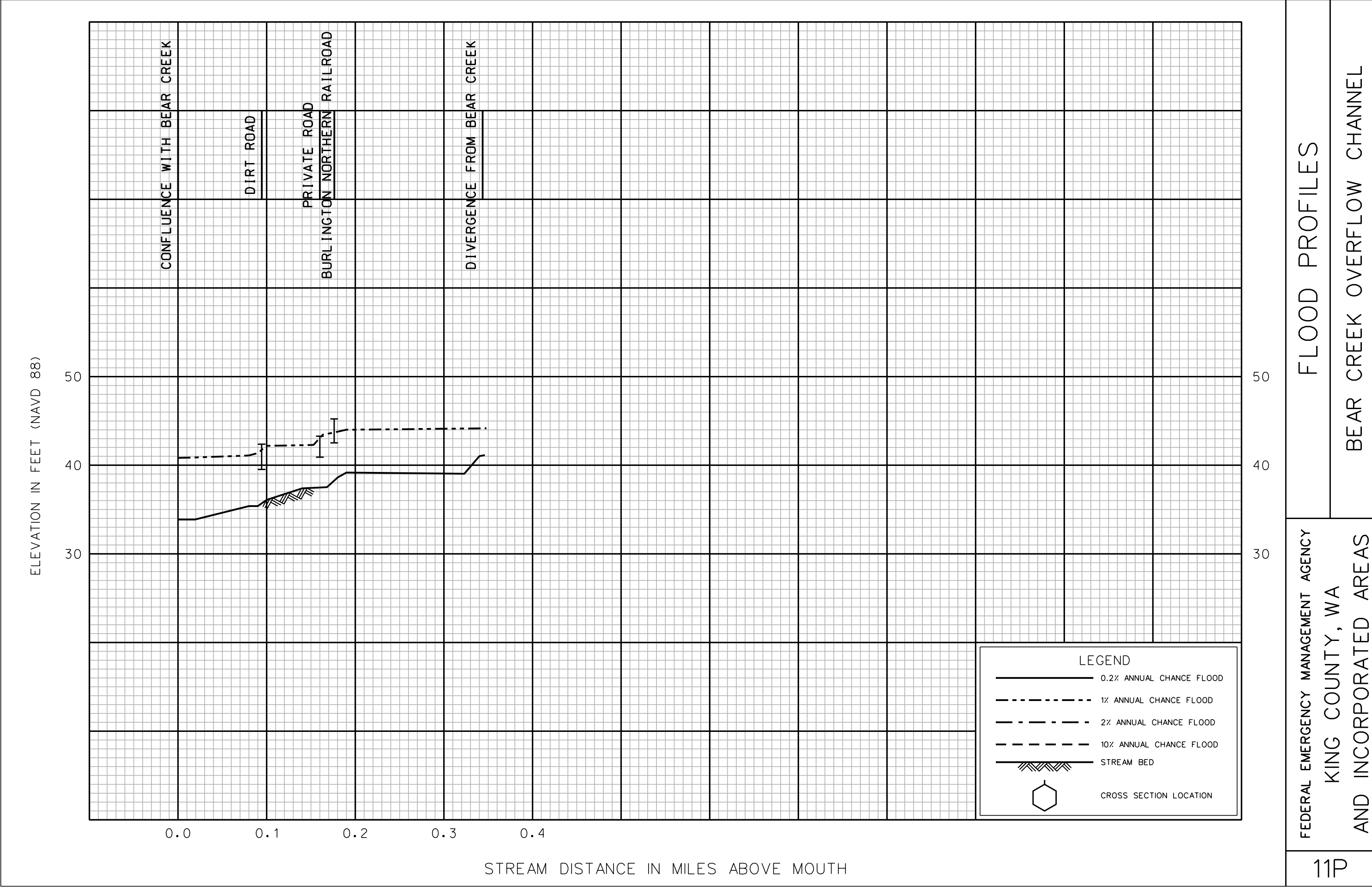
KING COUNTY, WA

AND INCORPORATED AREAS

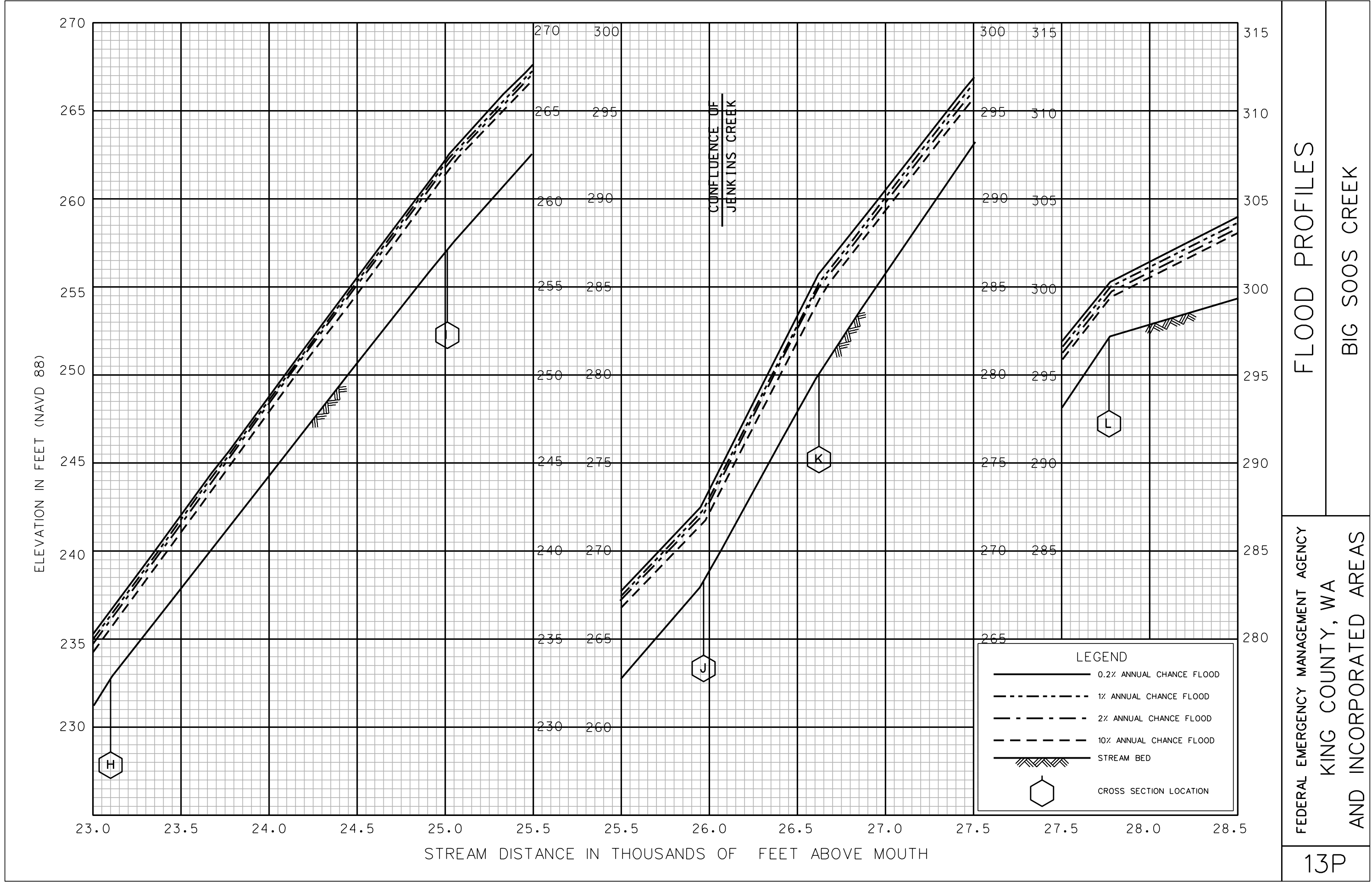


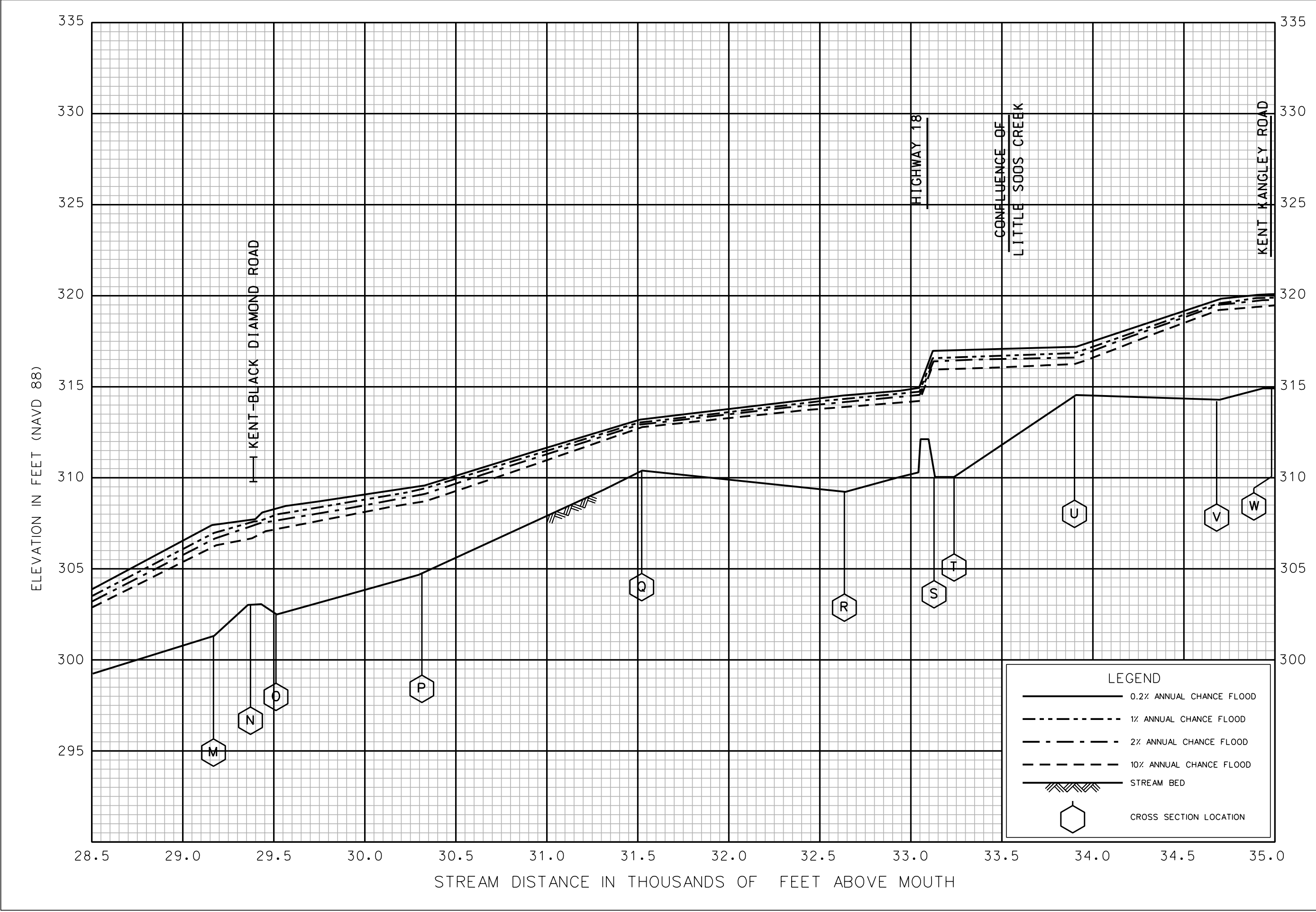










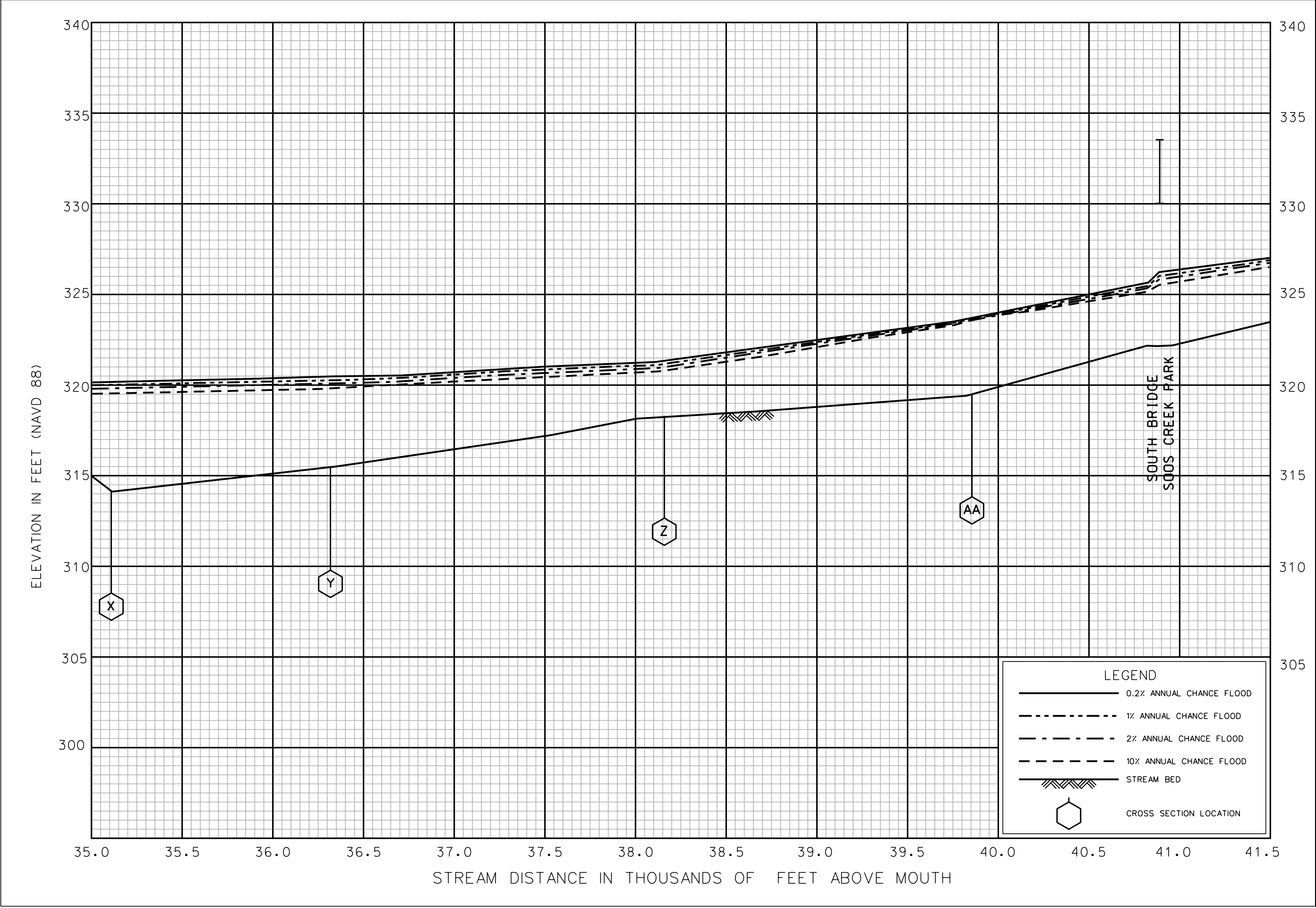


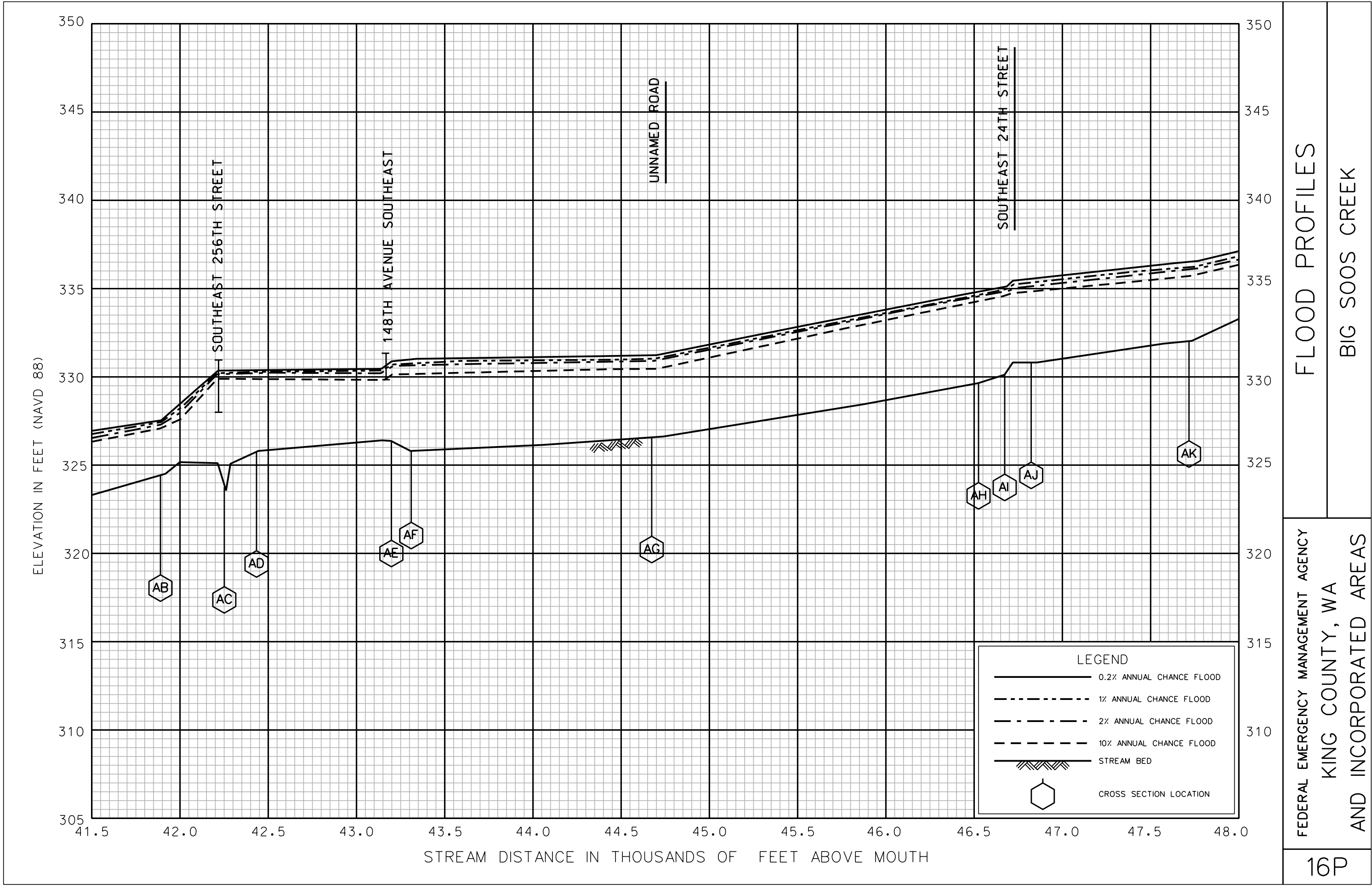
FLOOD PROFILES

BIG SOOS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS



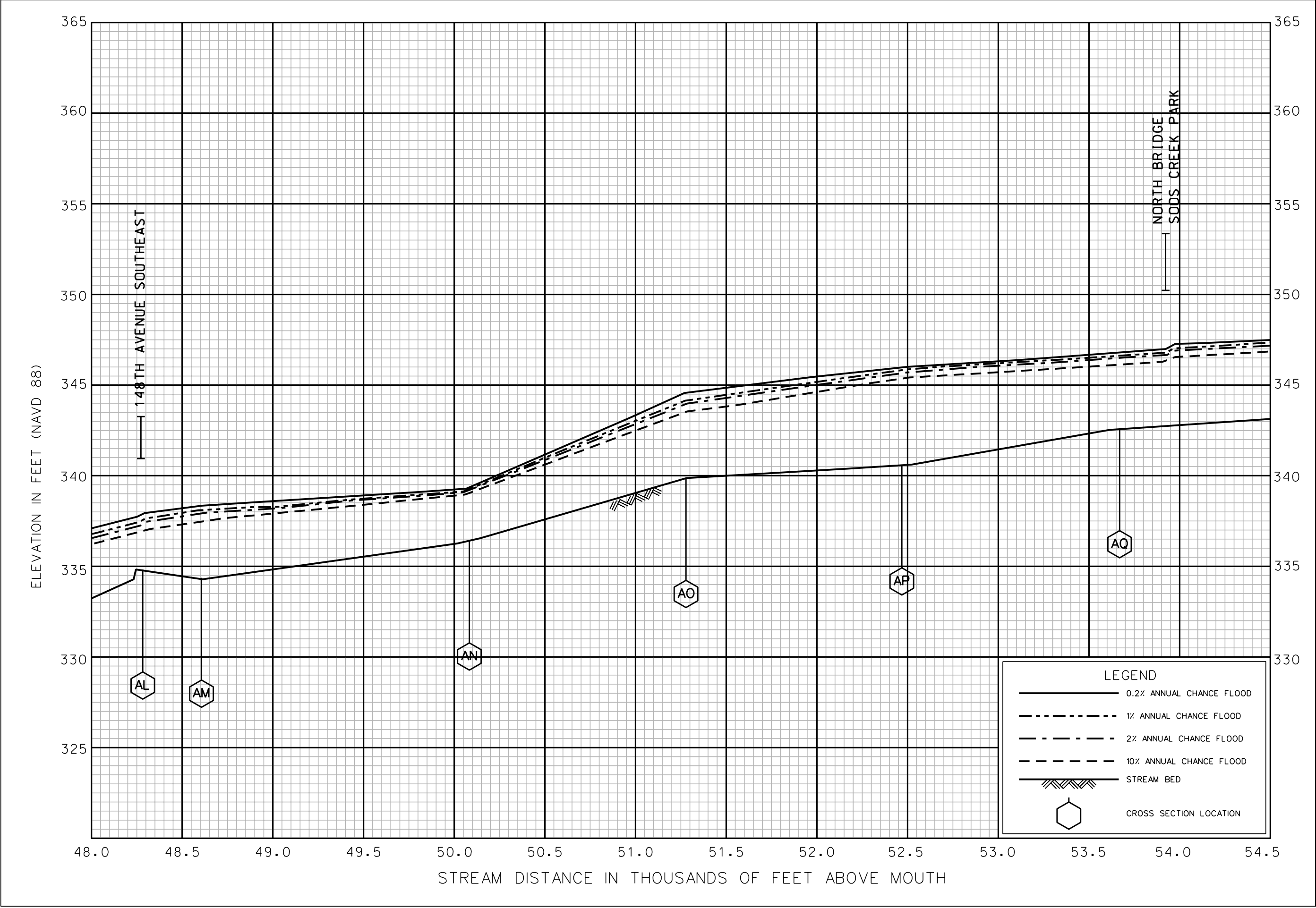




FLOOD PROFILES

BIG SOOS CREEK

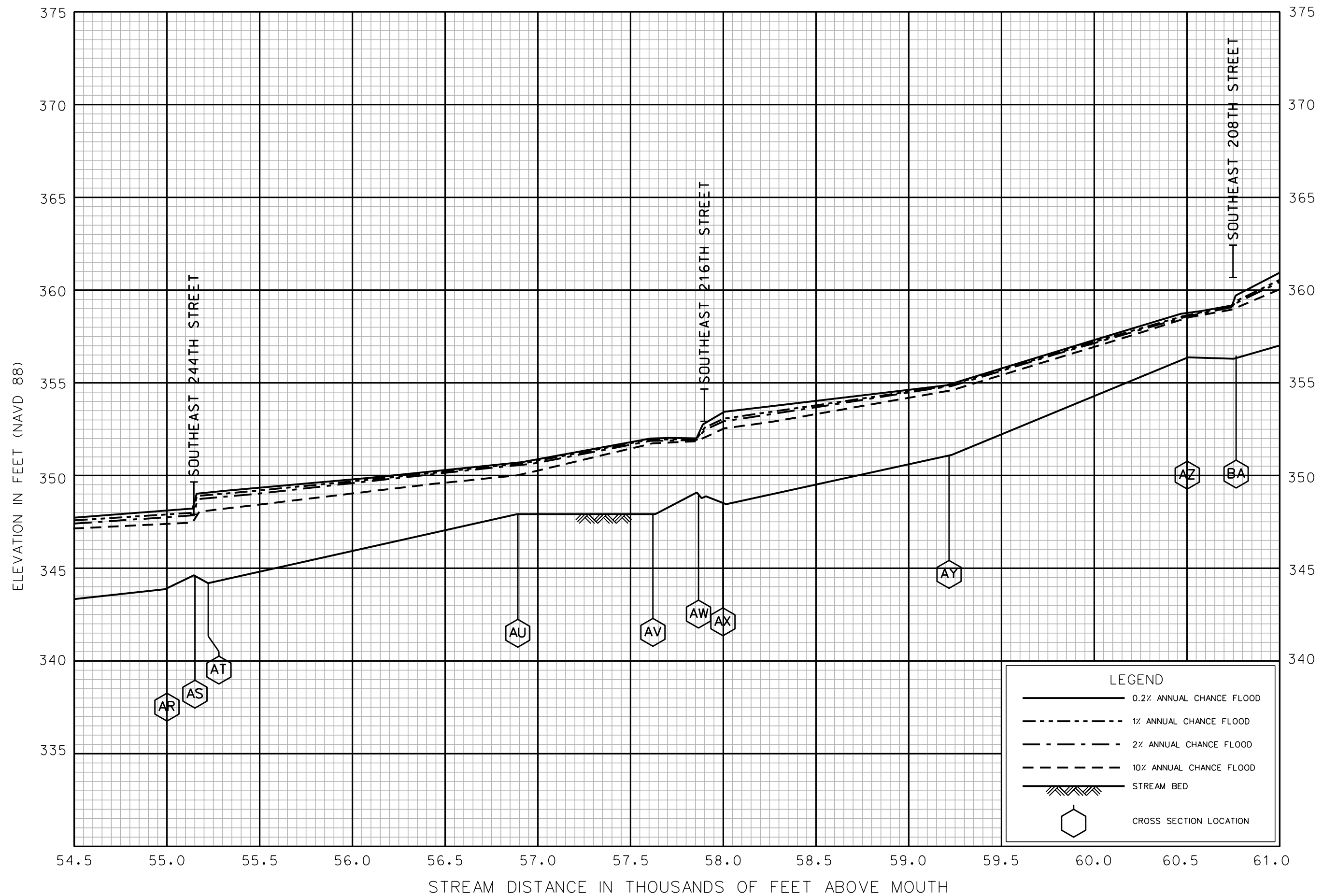
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS



FLOOD PROFILES

BIG SOOS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS



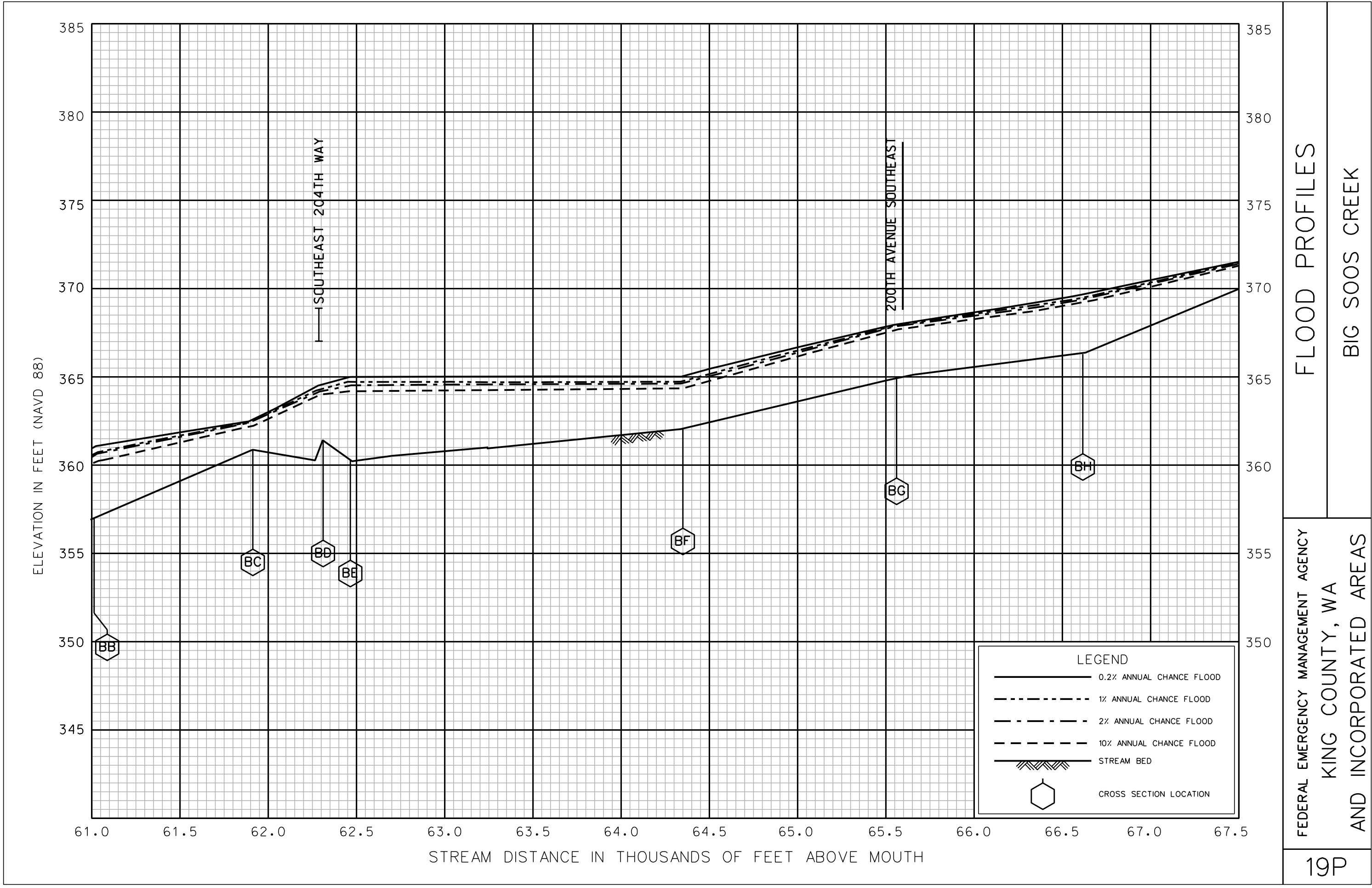
---

---

# FLOOD PROFILES

BIG SOOS CREEK

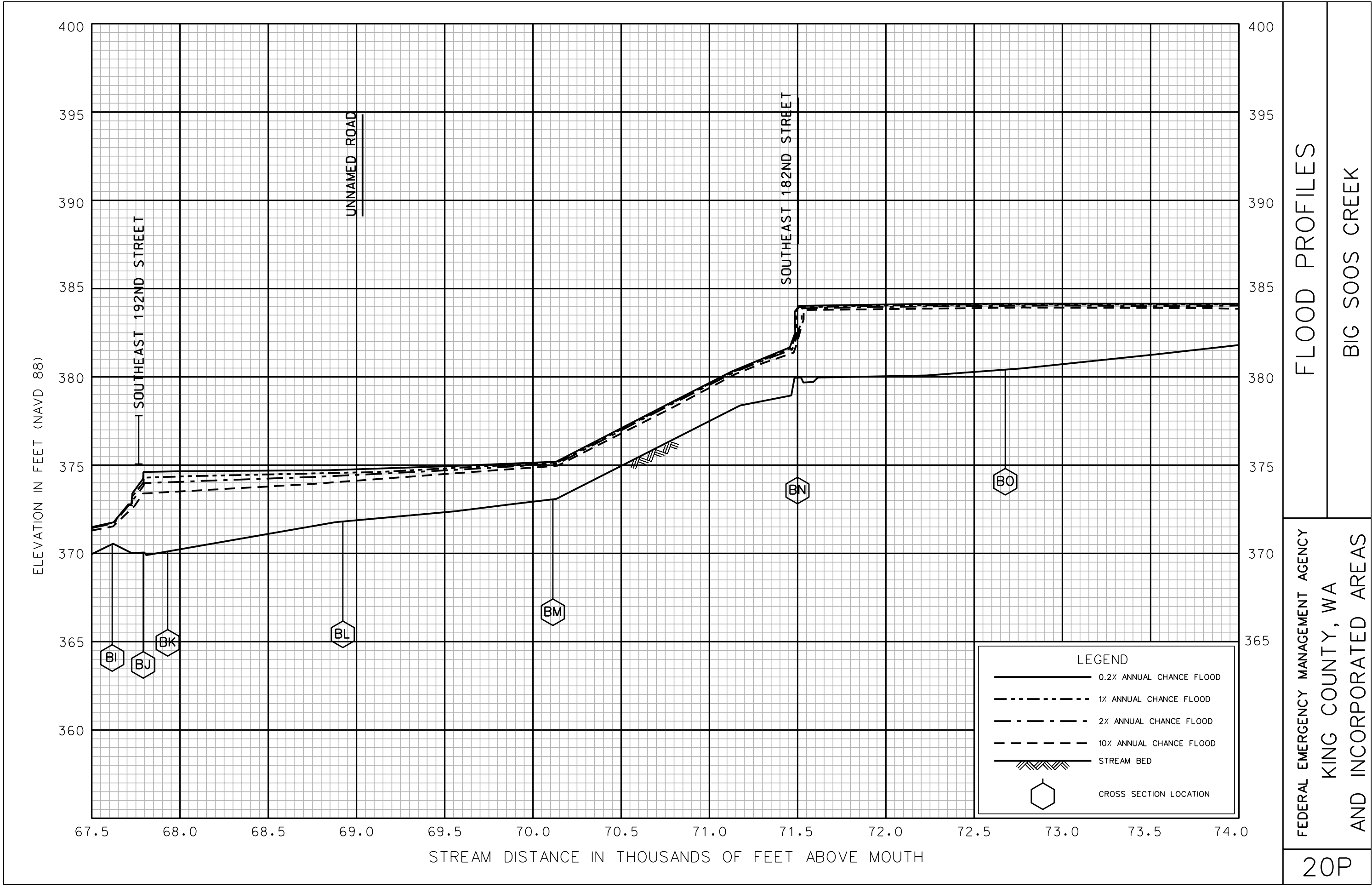
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

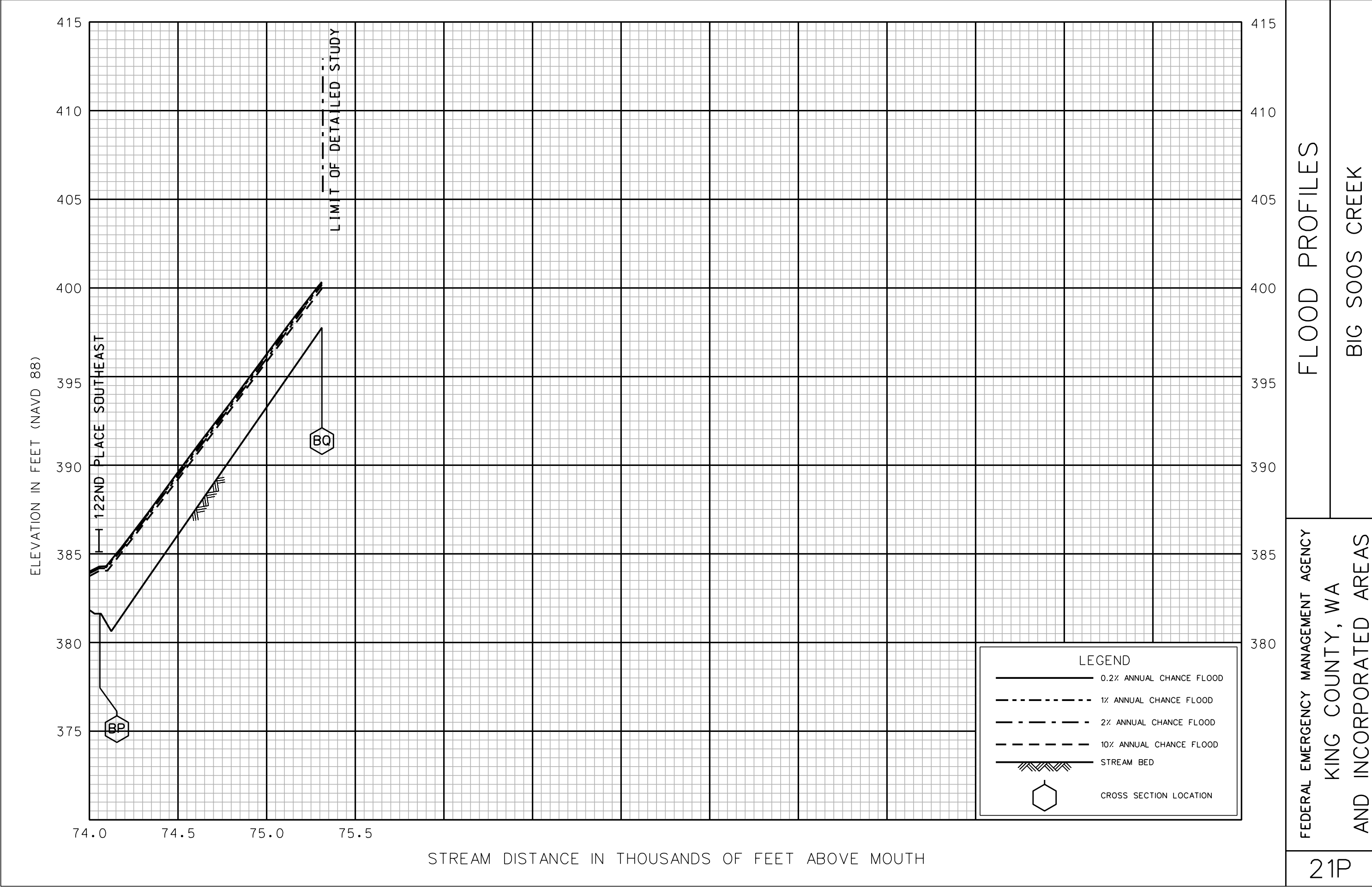


FLOOD PROFILES

BIG SOOS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

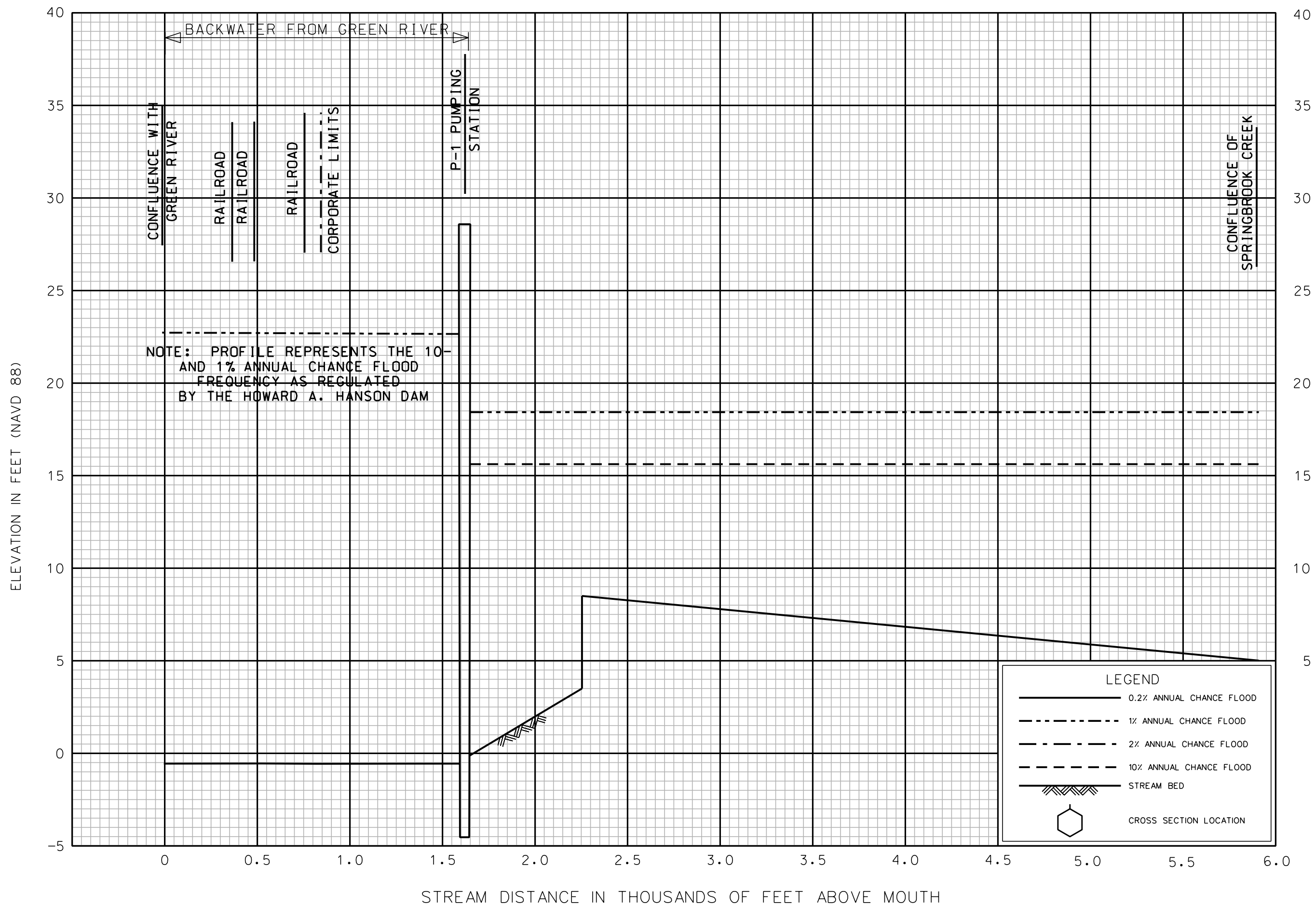




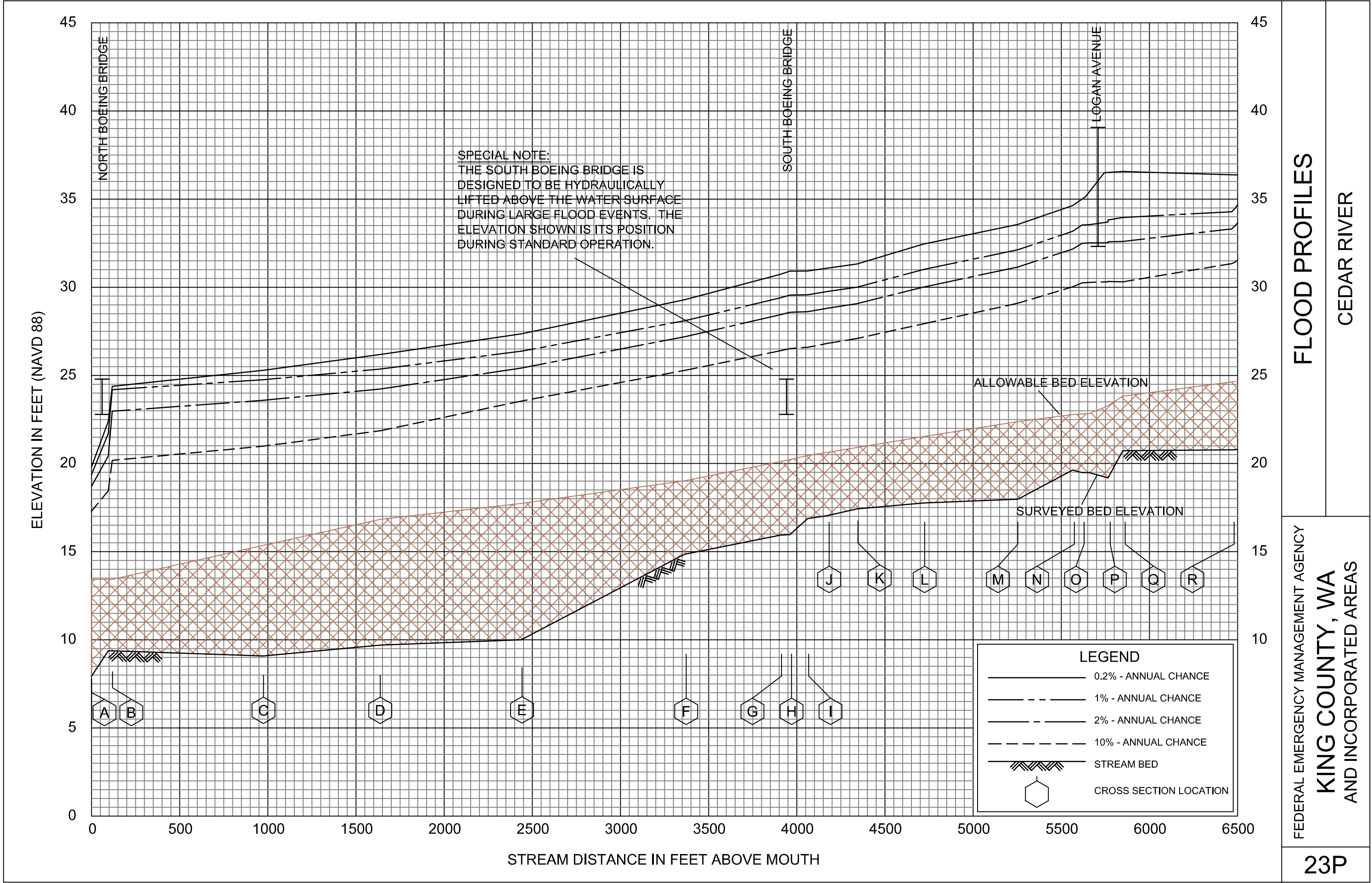
FLOOD PROFILES

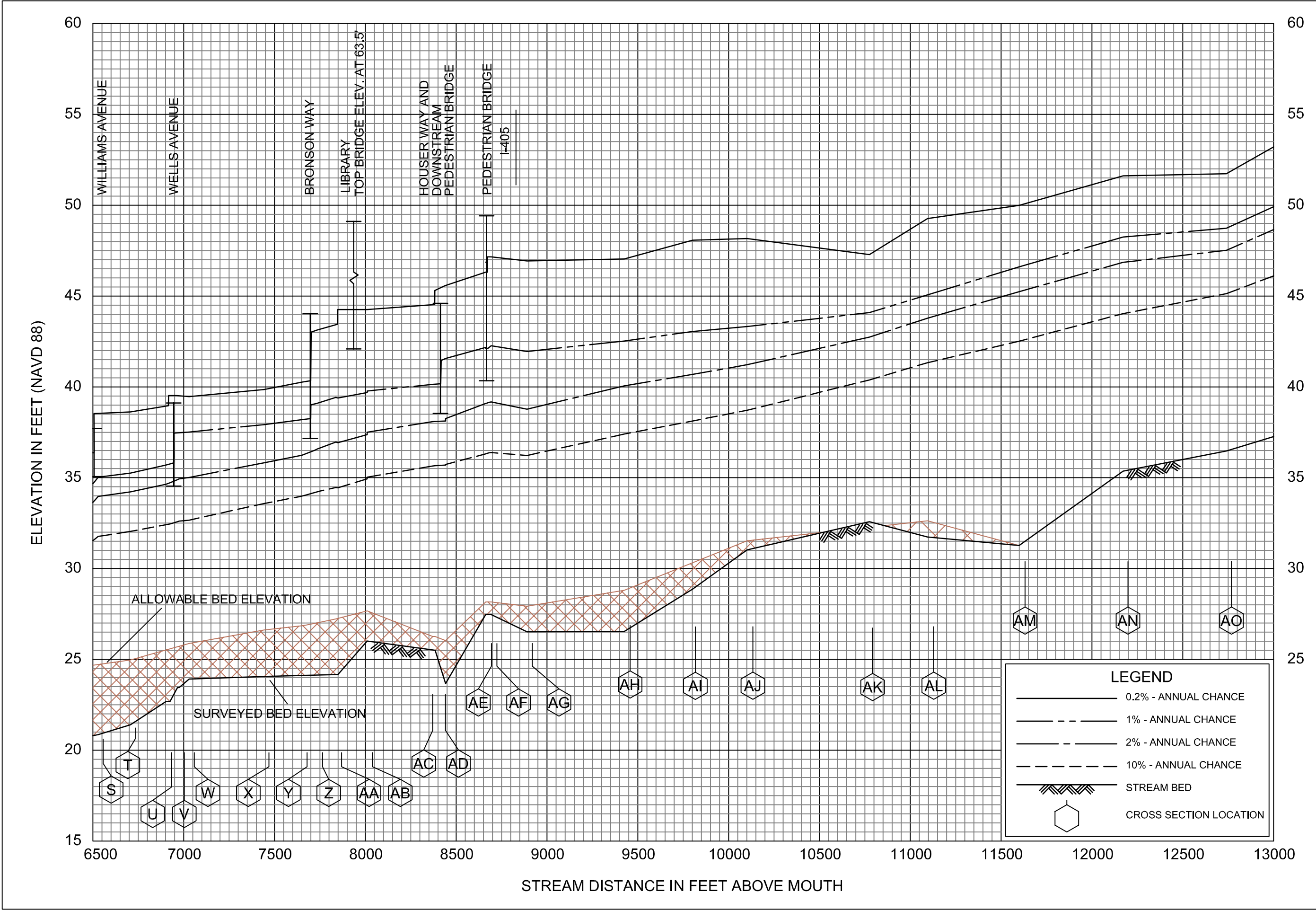
BIG SOOS CREEK

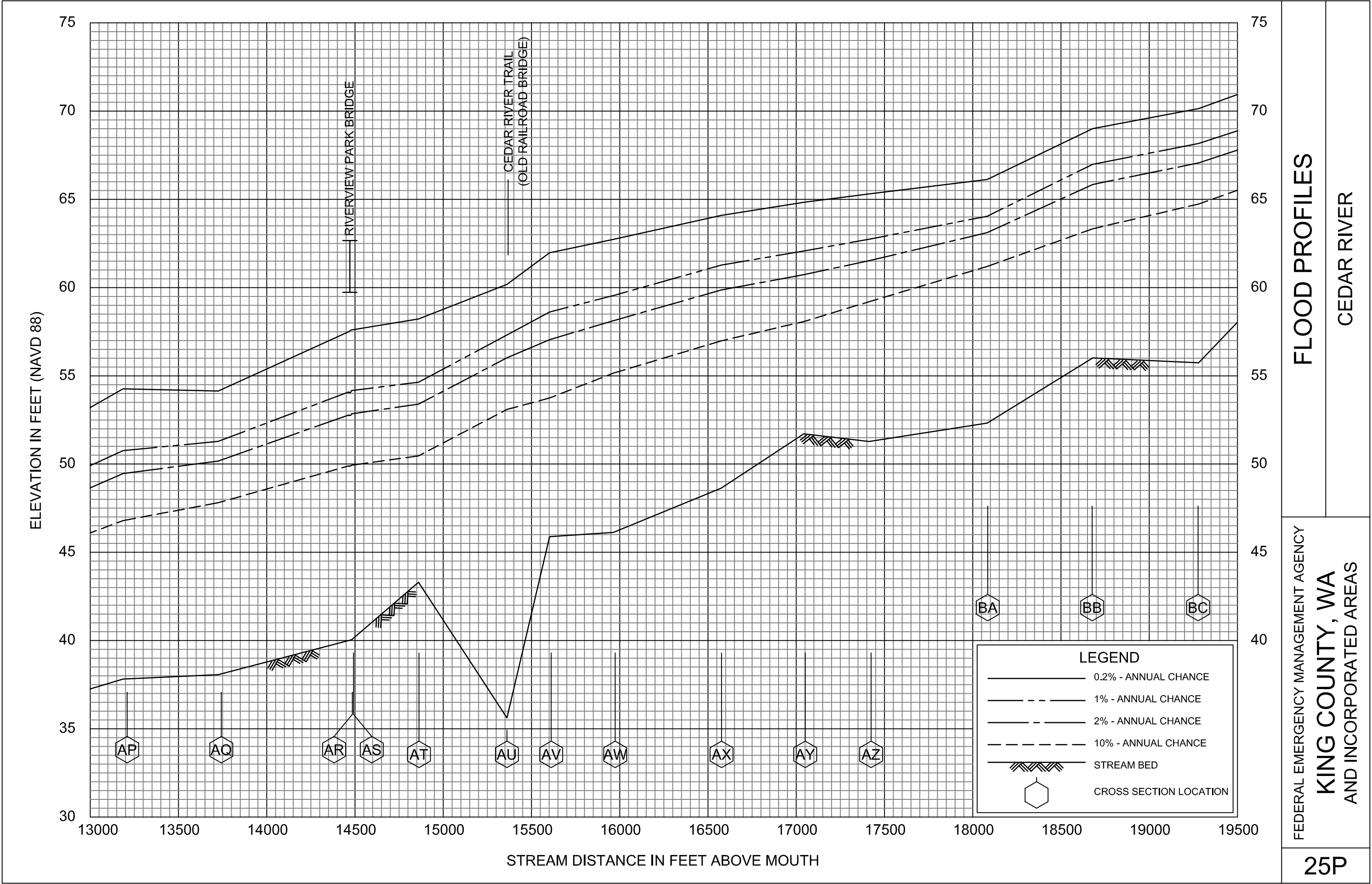
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS



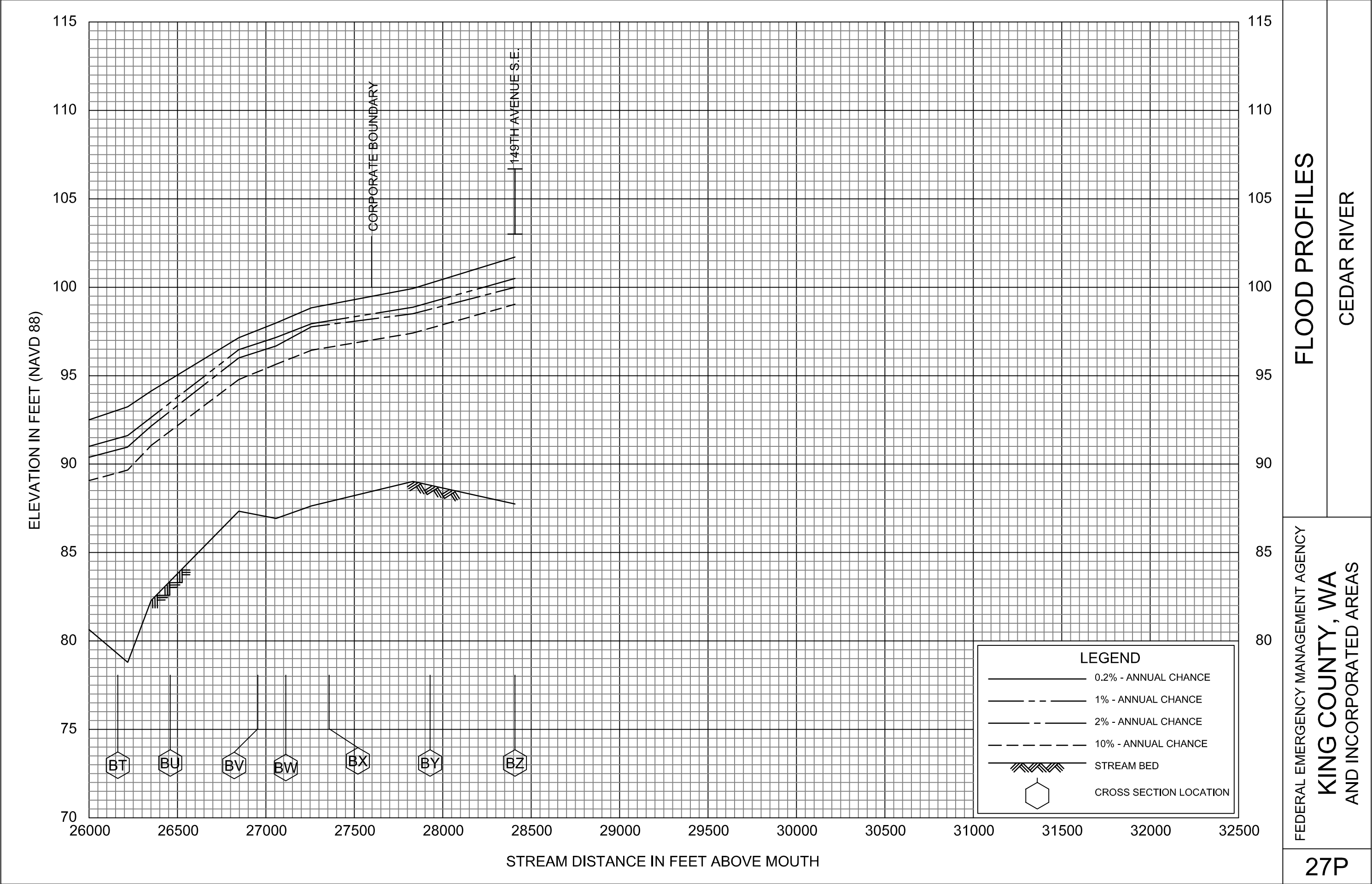








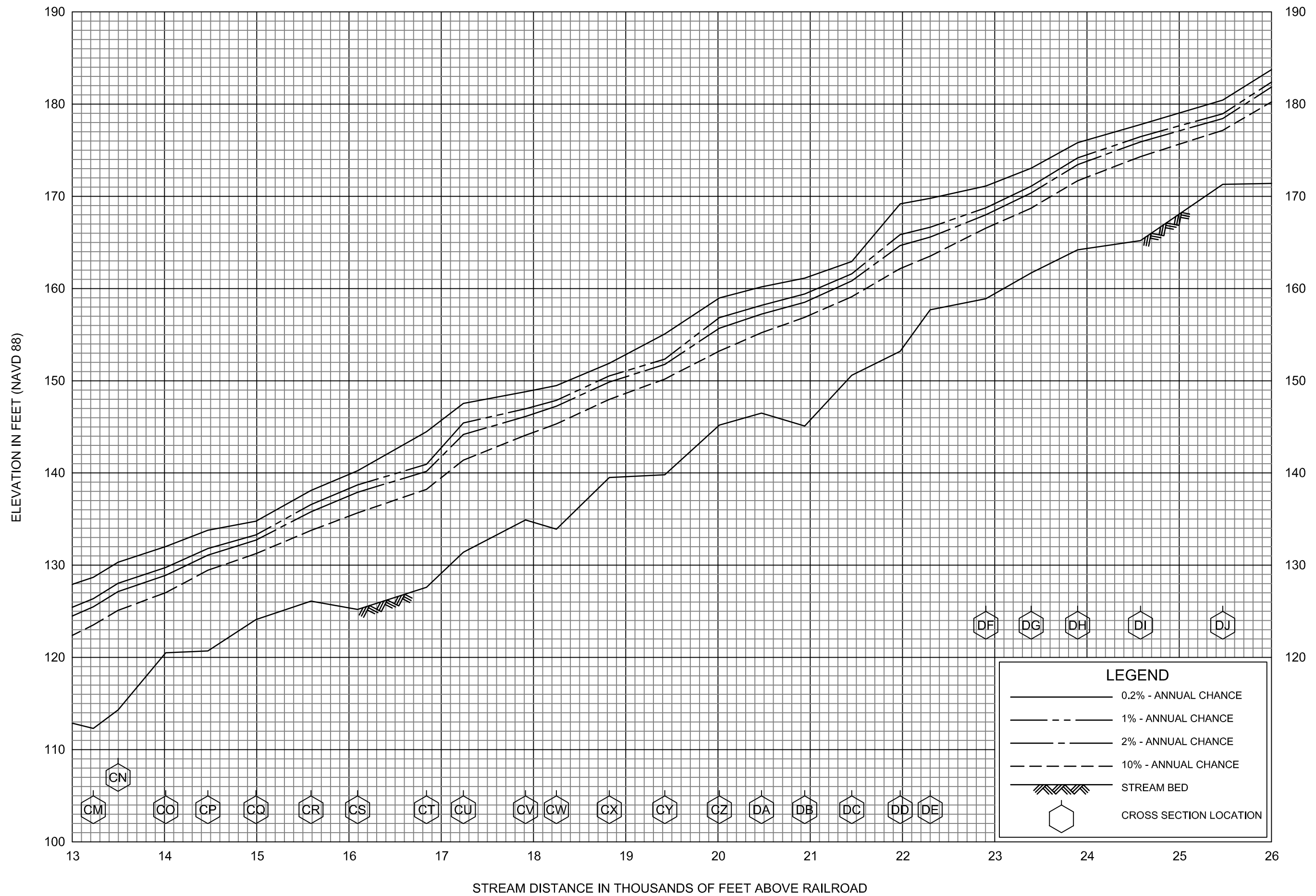






# CEDAR RIVER

KING COUNTY, WA  
AND INCORPORATED AREAS

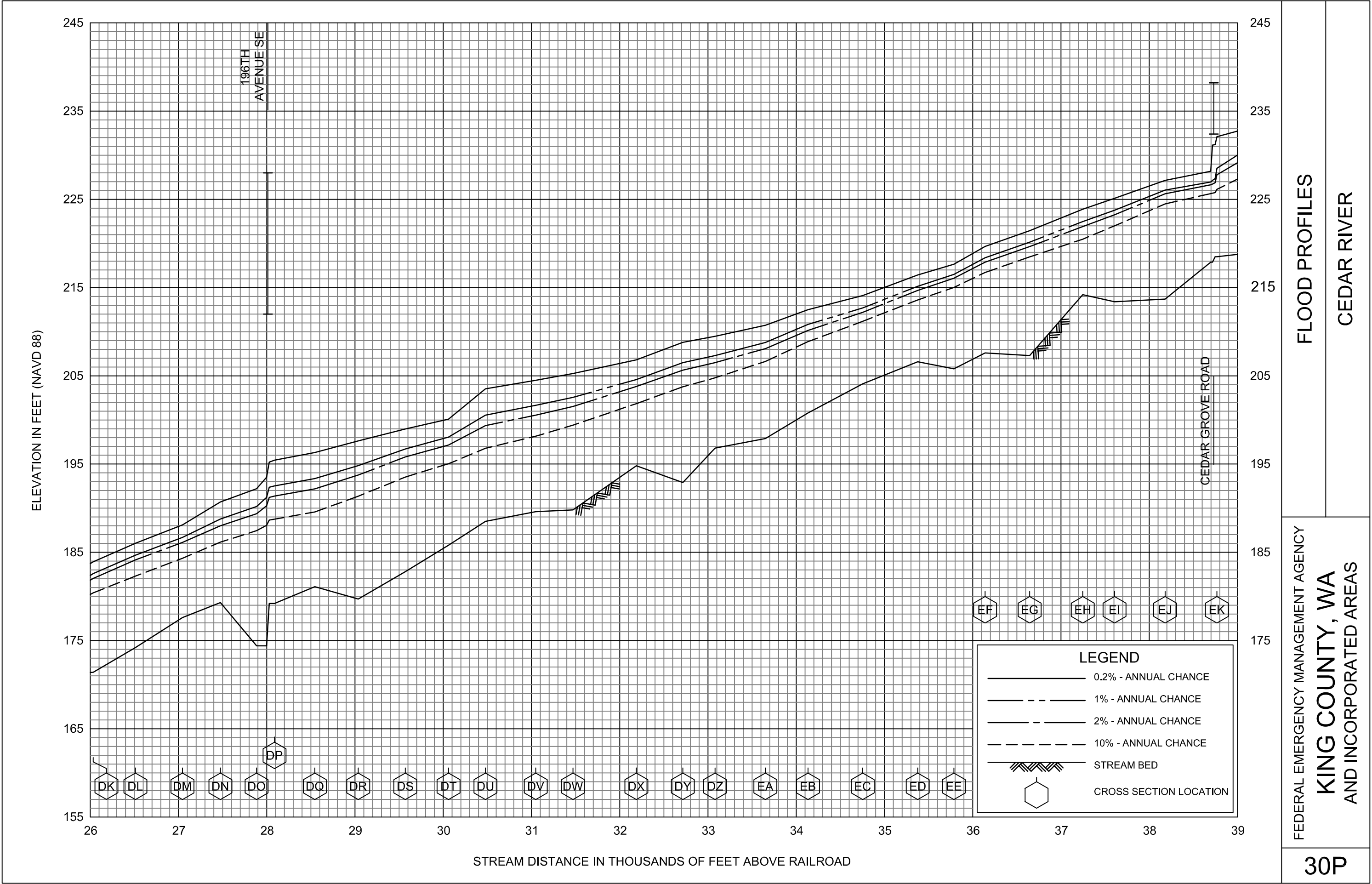


# FLOOD PROFILES

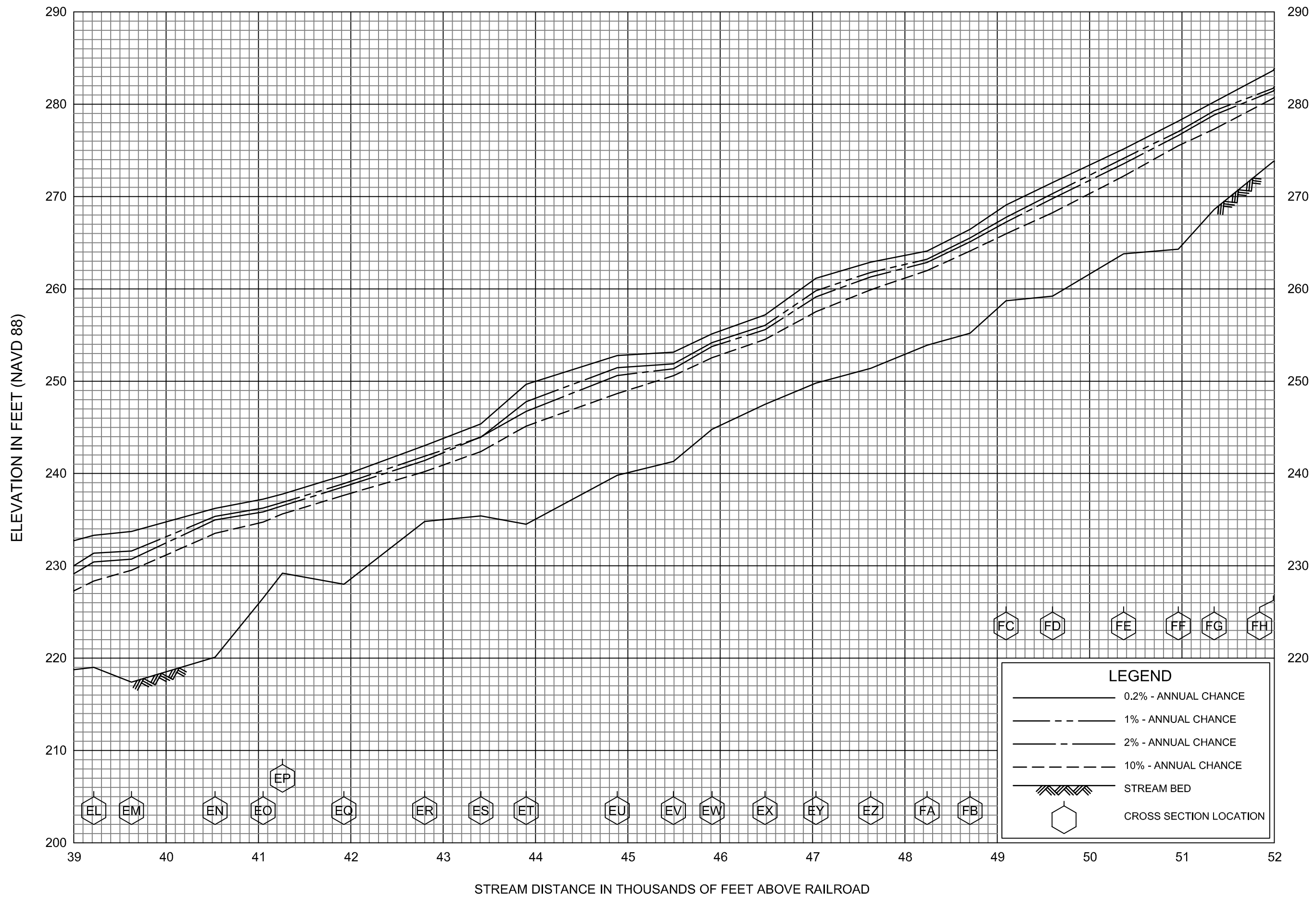
CEDAR RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

KING COUNTY, WA  
AND INCORPORATED AREAS







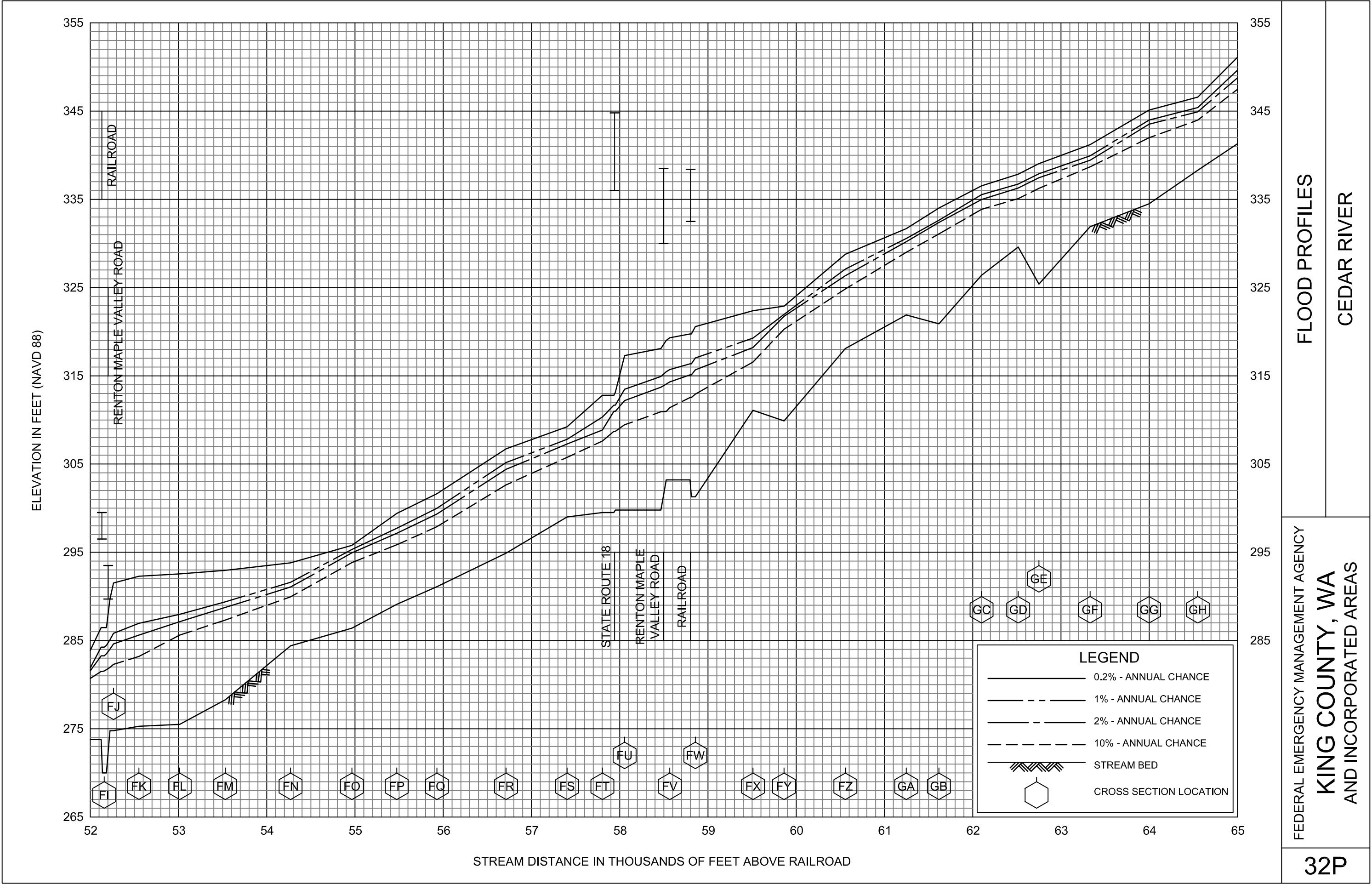
FEDERAL EMERGENCY MANAGEMENT AGENCY

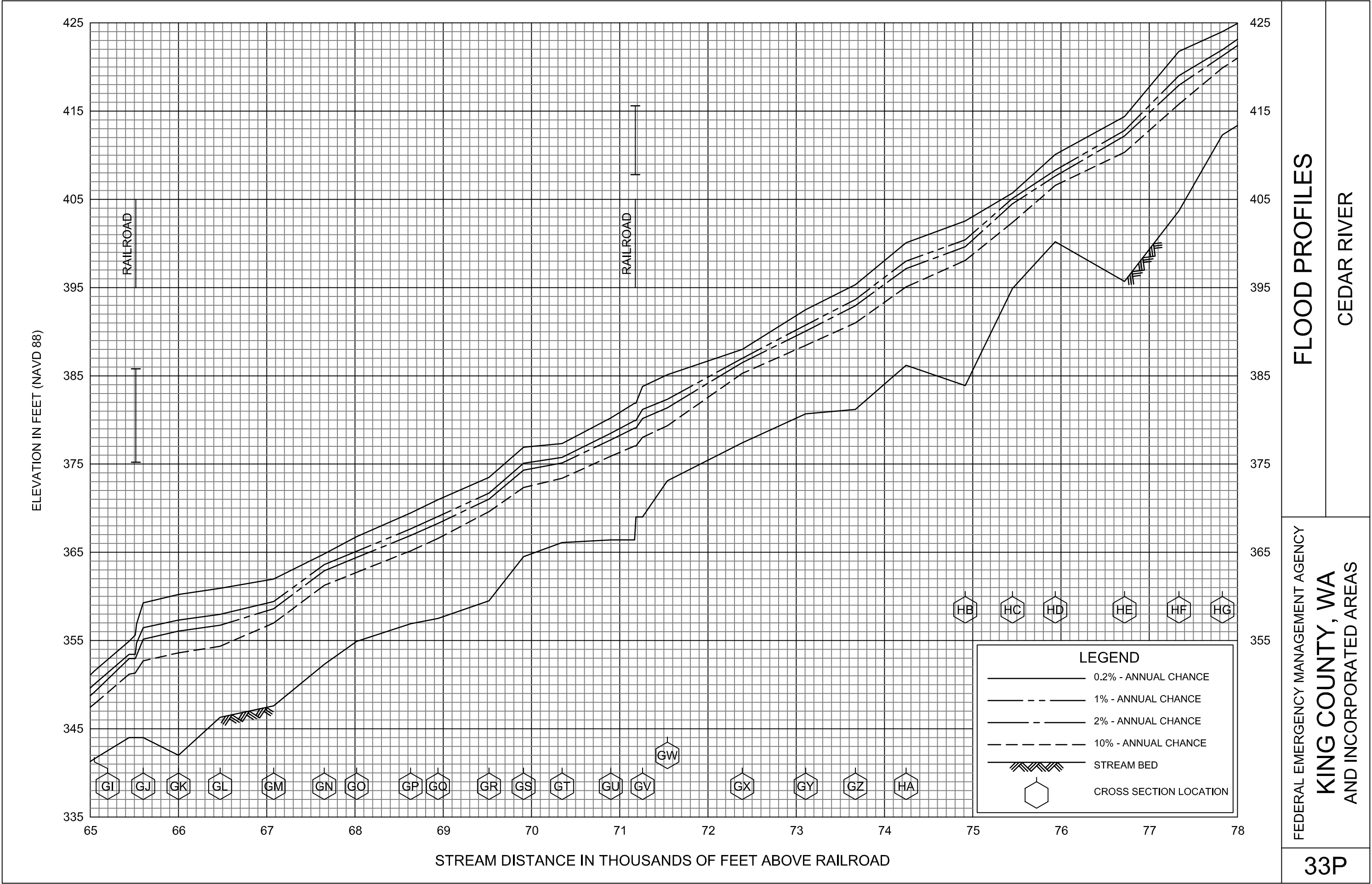
KING COUNTY, WA  
AND INCORPORATED AREAS

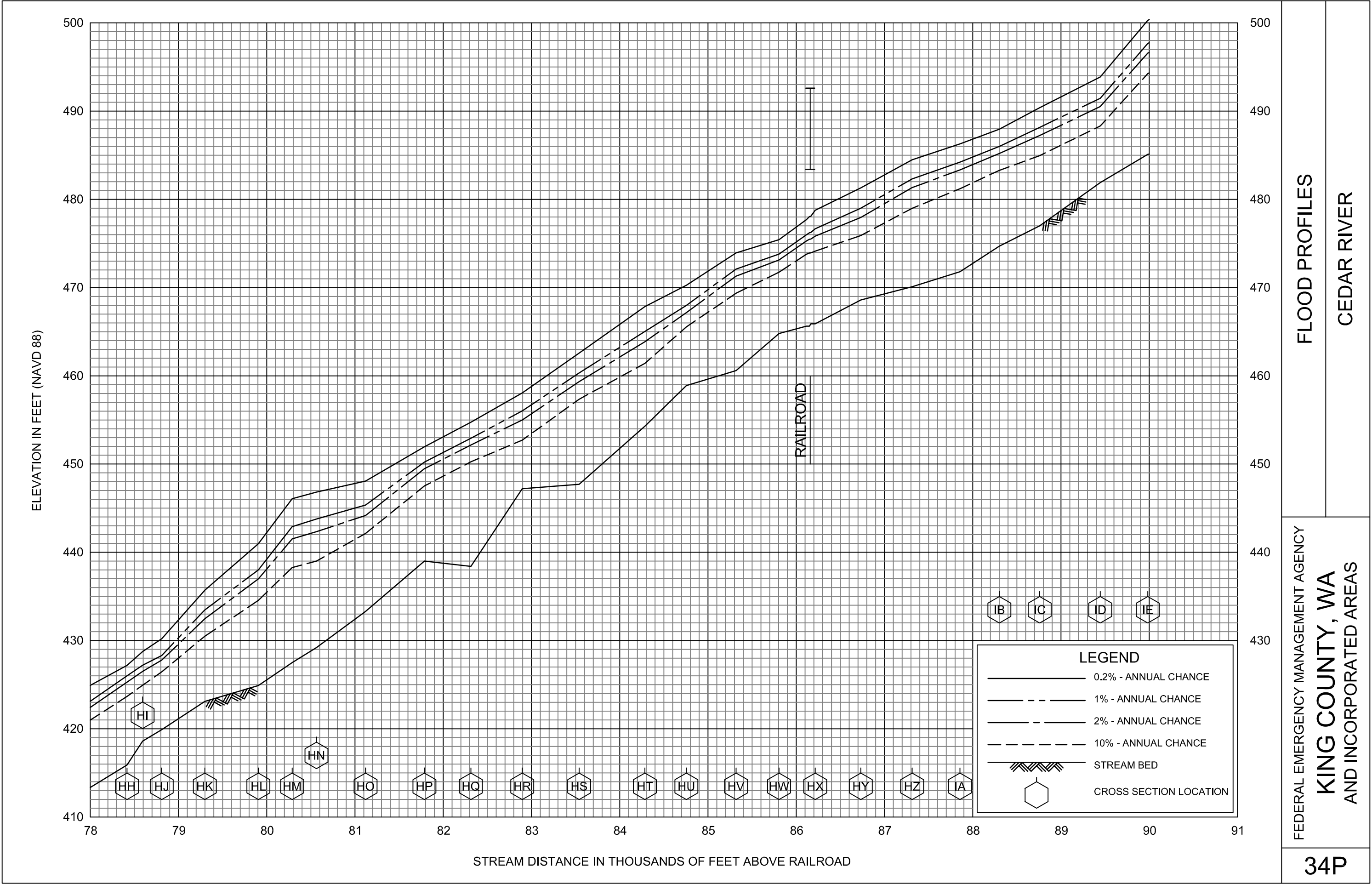
# FLOOD PROFILES

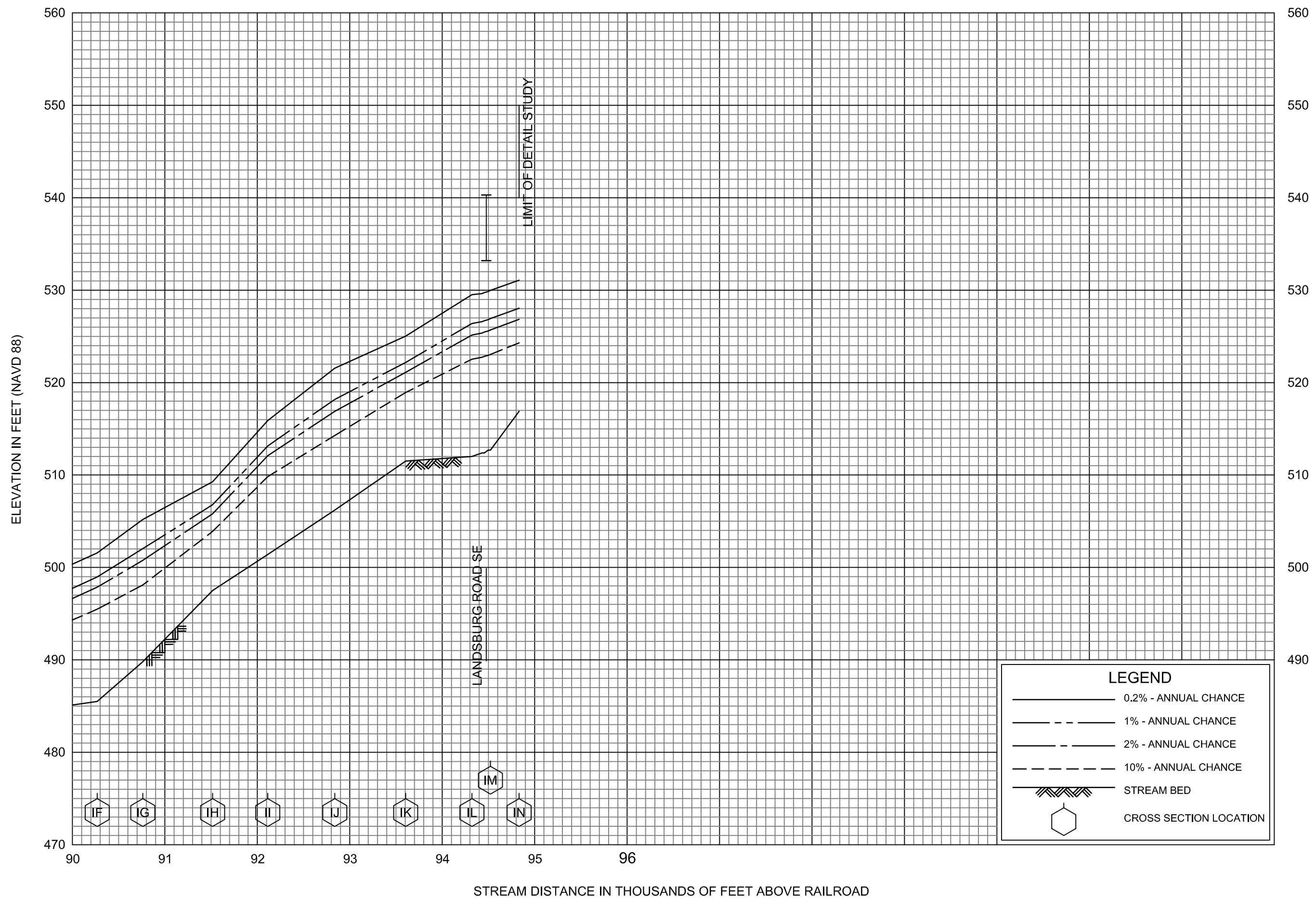
CEDAR RIVER

31P



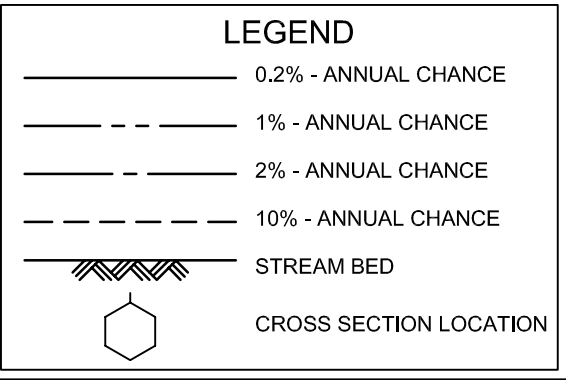






STREAM DISTANCE IN THOUSANDS OF FEET ABOVE RAILROAD

# LIMIT OF DETAIL STUDY



0.2% - ANNUAL CHANCE

2% - ANNUAL CHANCE

10% - ANNUAL CHANCE

## STREAM BED

### CROSS SECTION LOCATION



FEDERAL EMERGENCY MANAGEMENT AGENCY

# KING COUNTY, WA AND INCORPORATED AREAS

# FLOOD PROFILES

# CEDAR RIVER

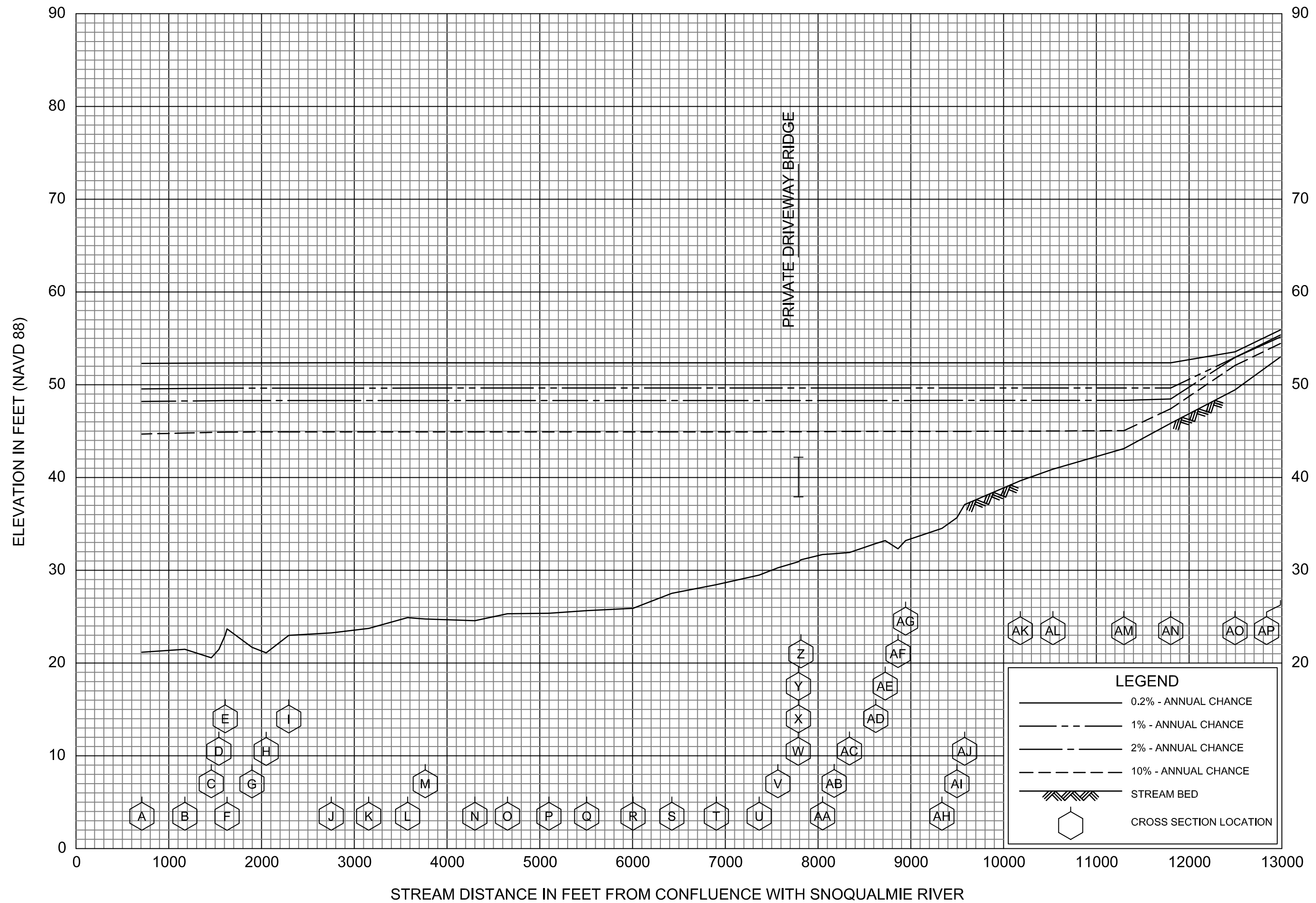
35P







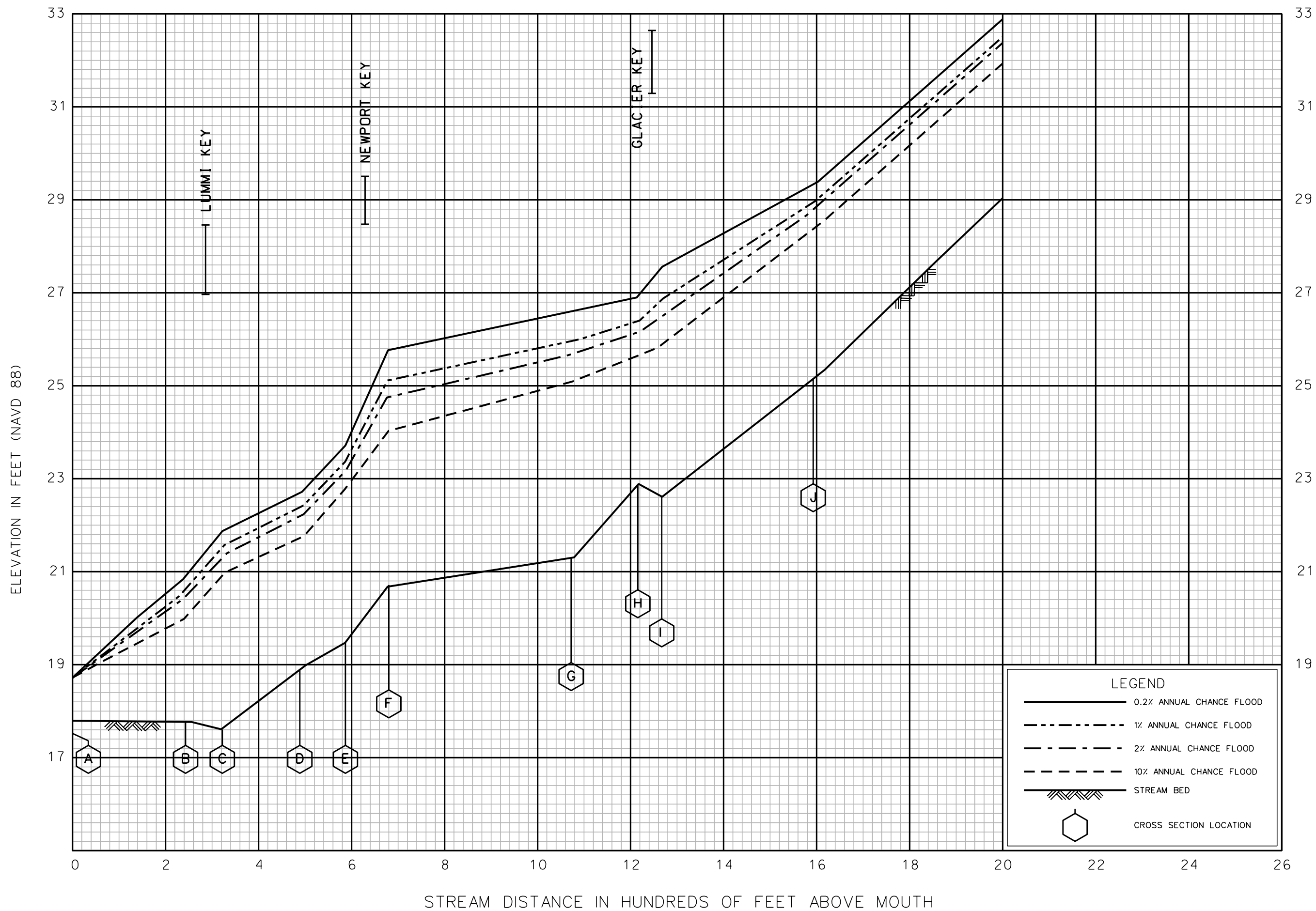


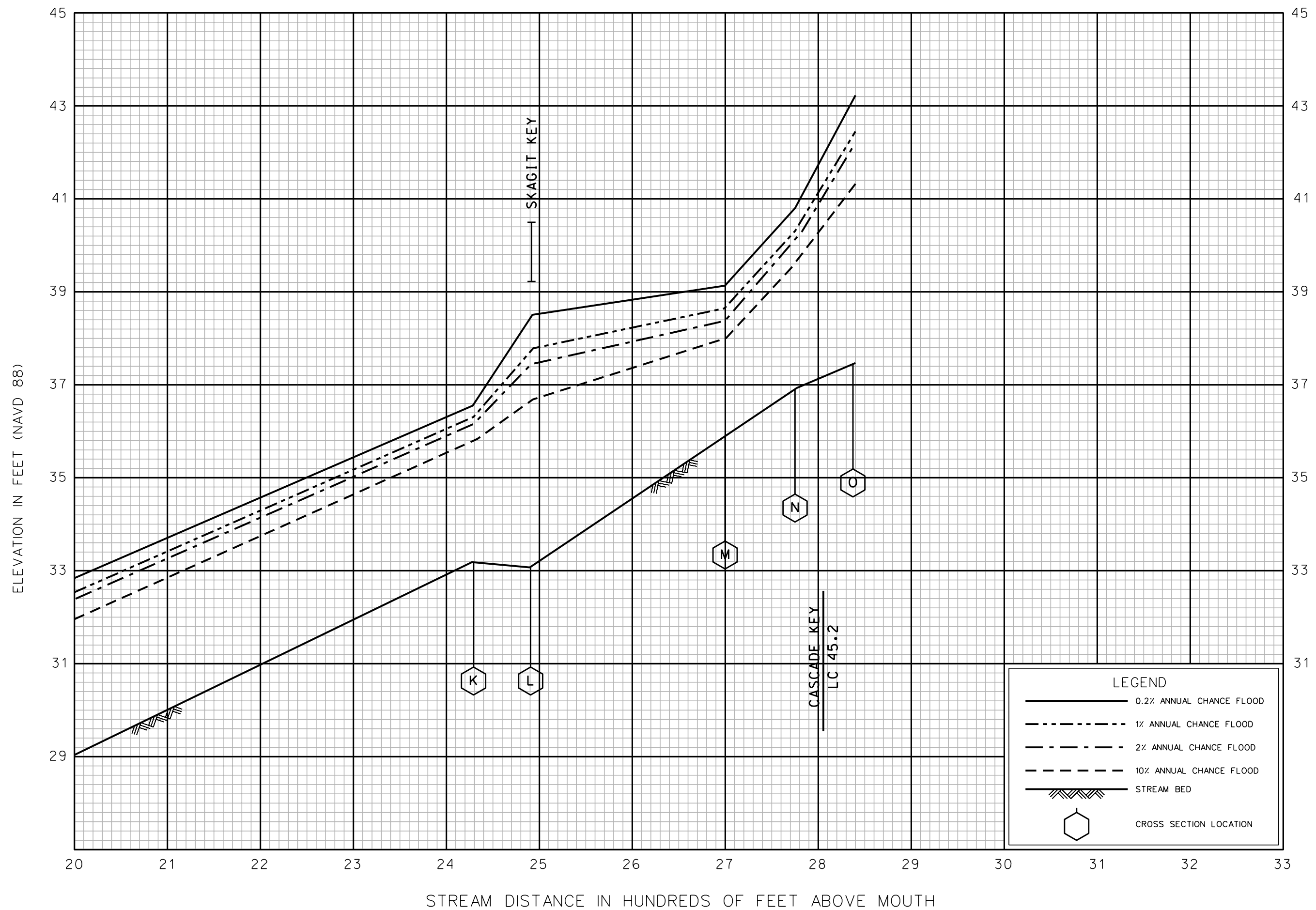


# FLOOD PROFILES

# CHERRY CREEK

**KING COUNTY, WA  
AND INCORPORATED AREAS**





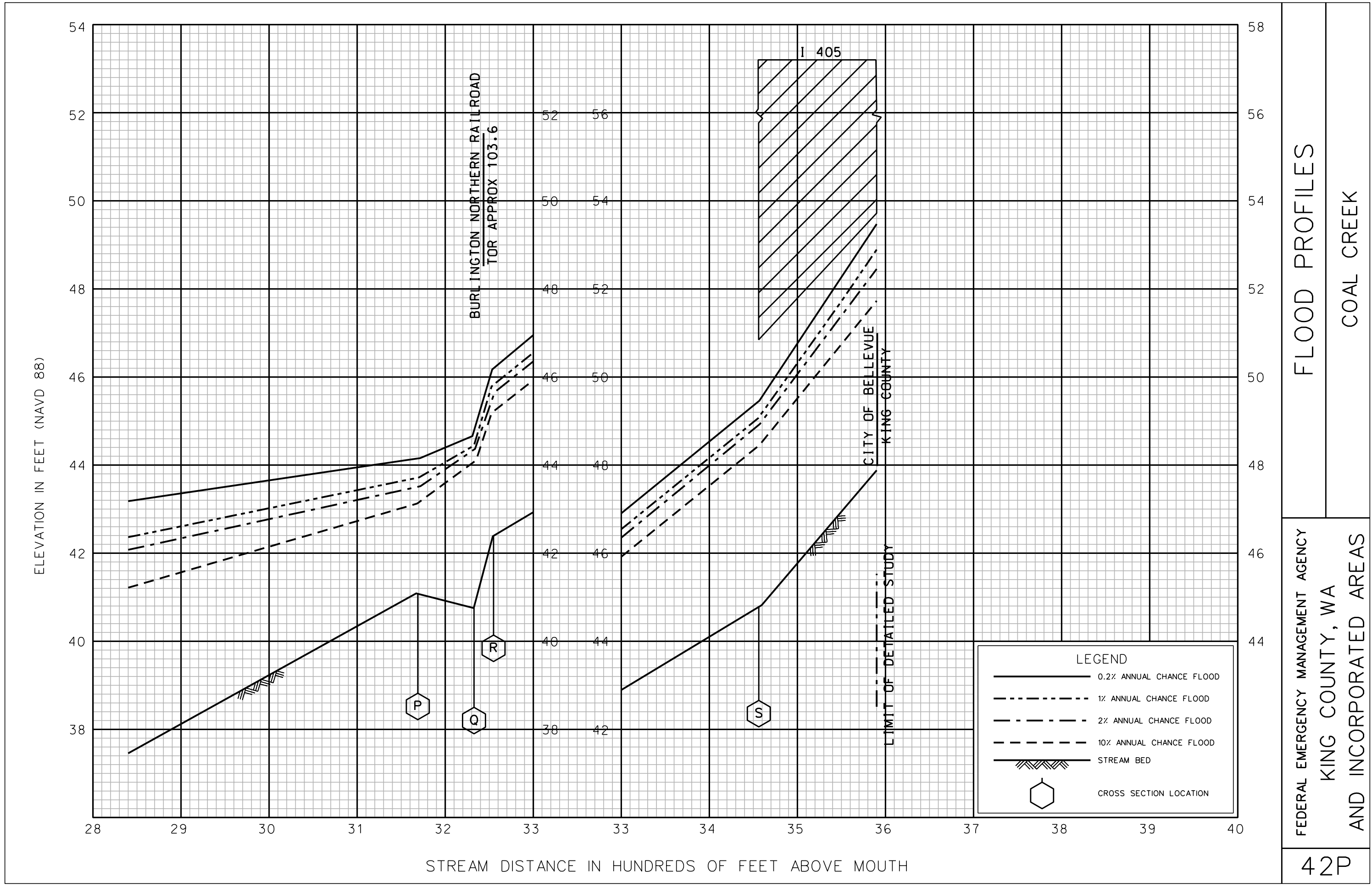
---

---

# FLOOD PROFILES

COAL CREEK

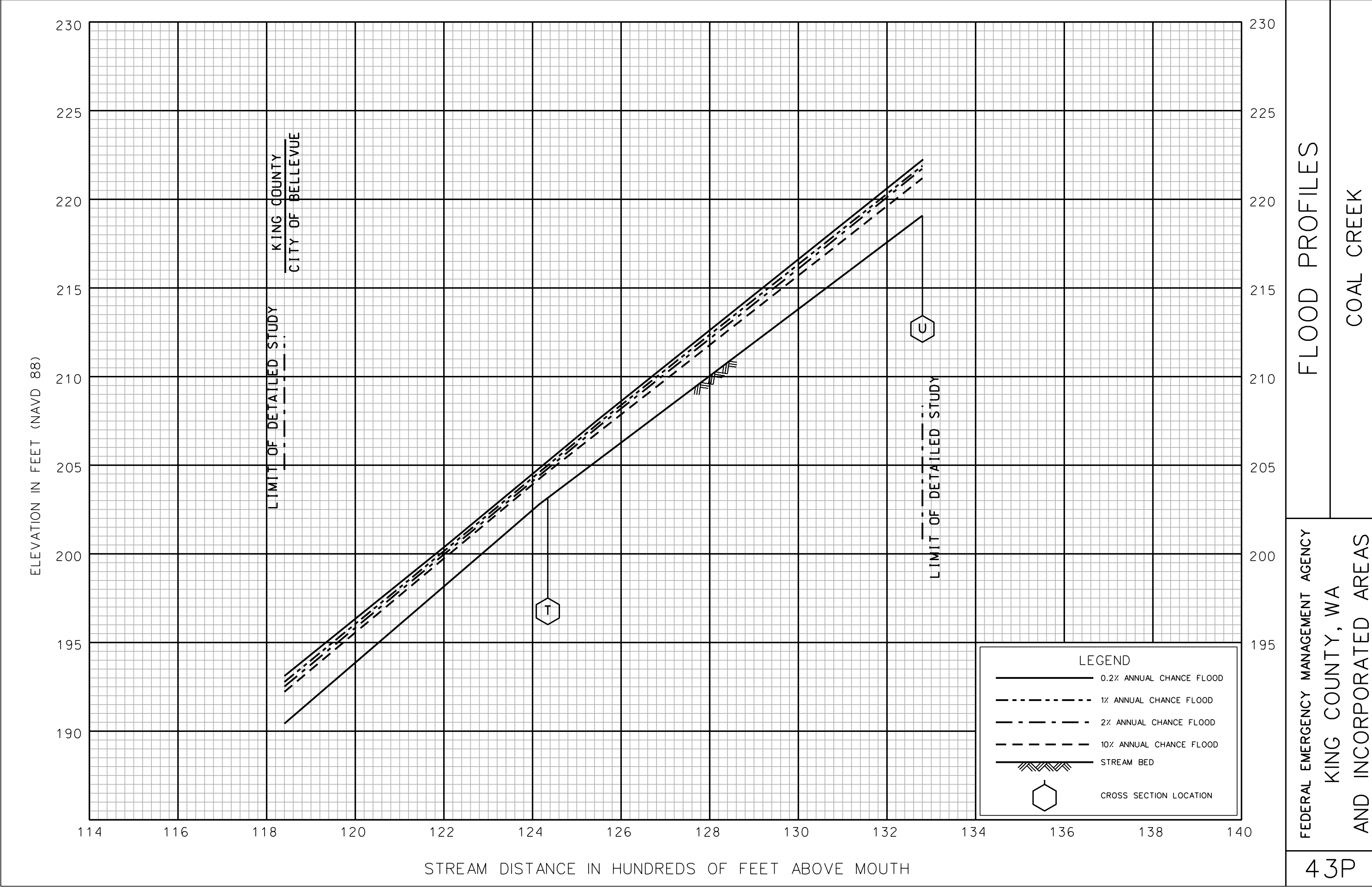
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS



FLOOD PROFILES

COAL CREEK

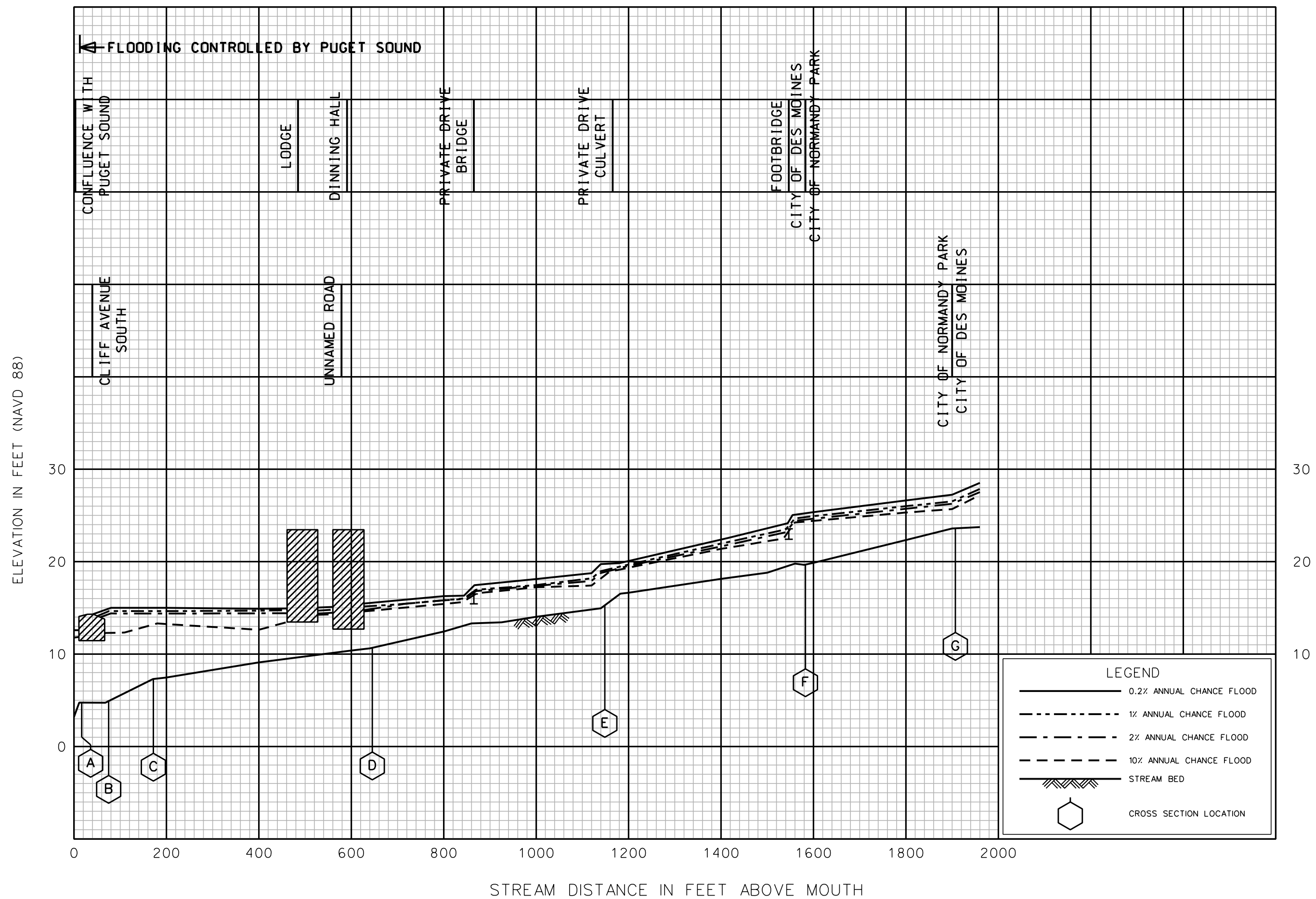
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

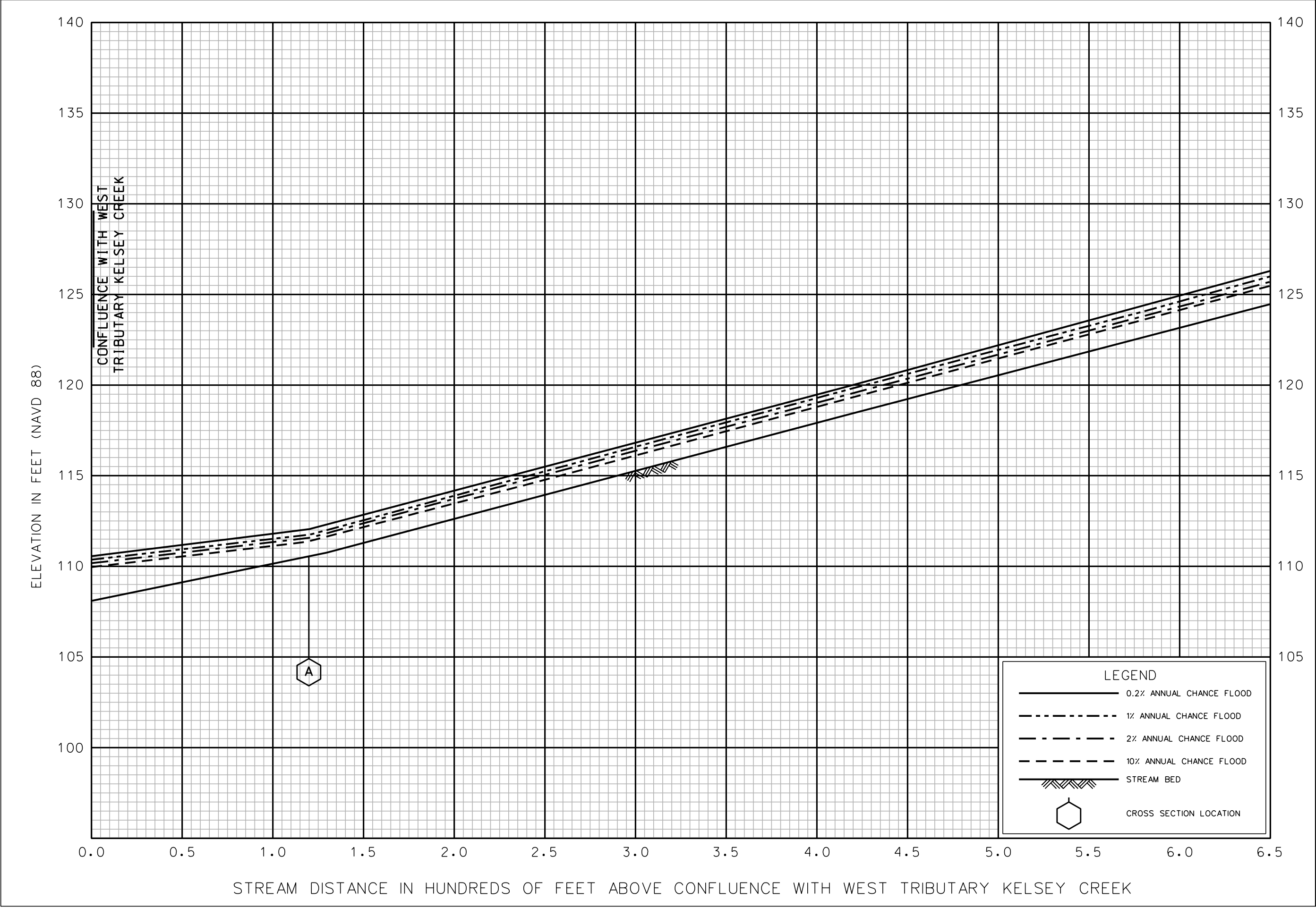


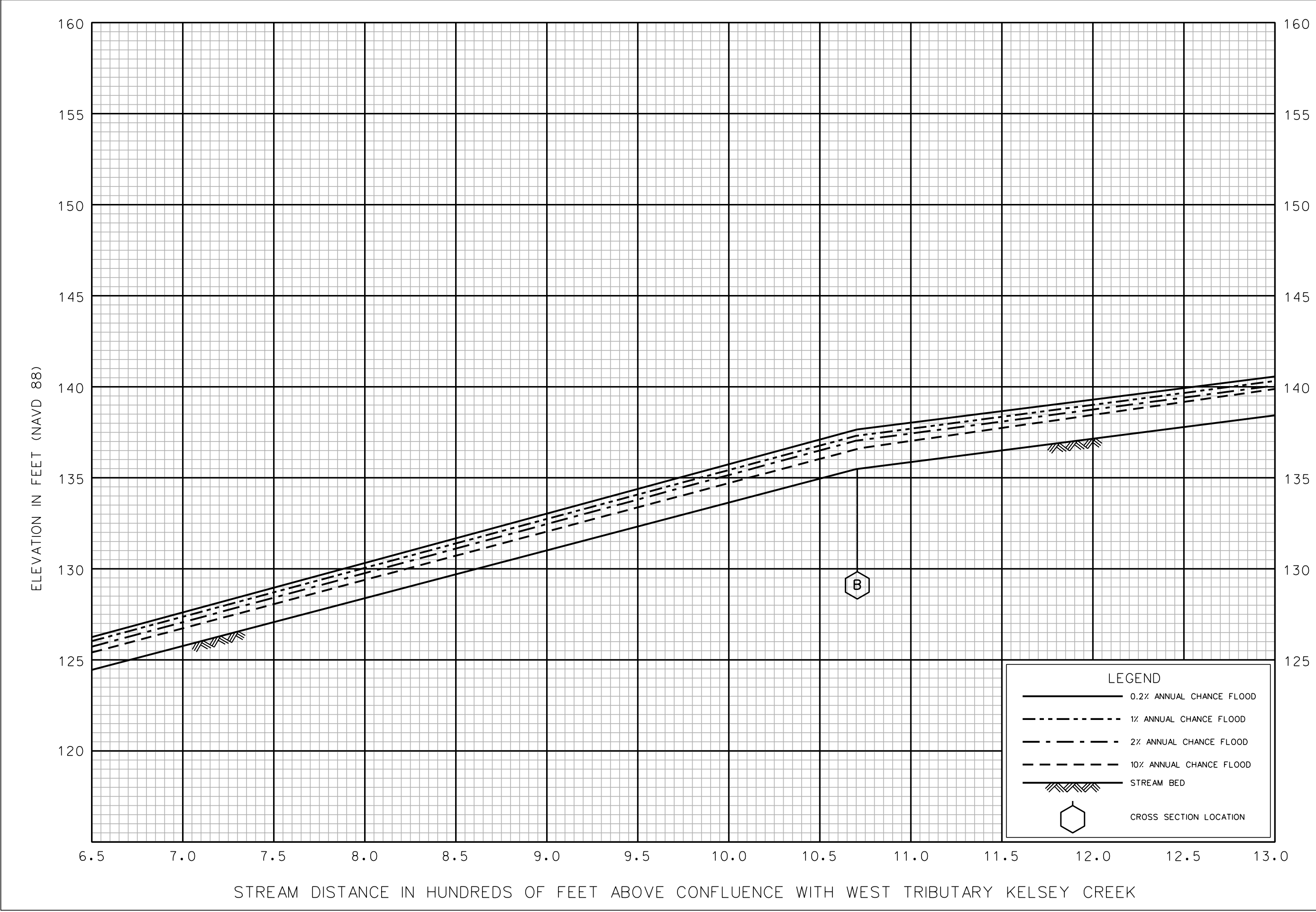
FLOOD PROFILES

COAL CREEK

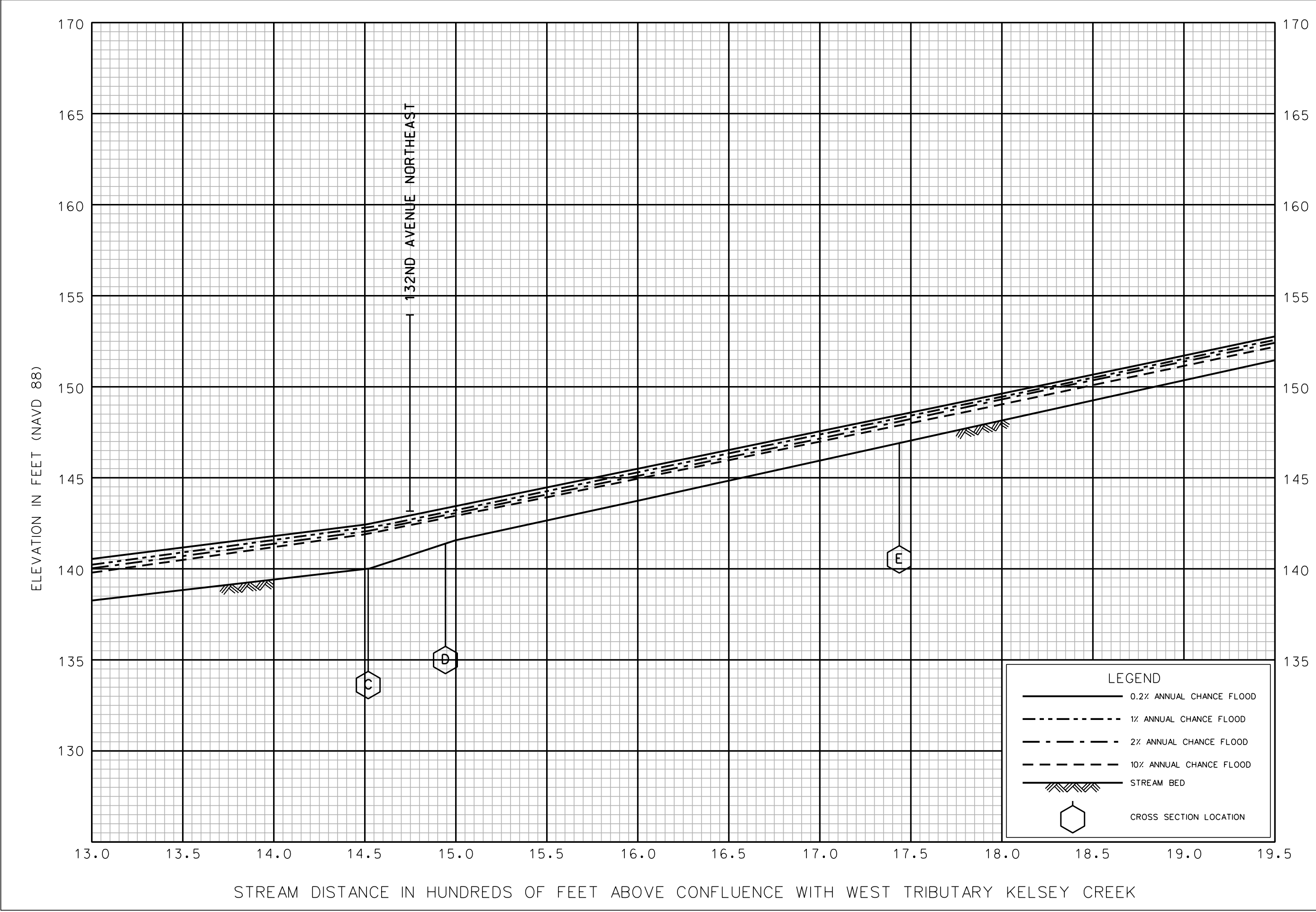
FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

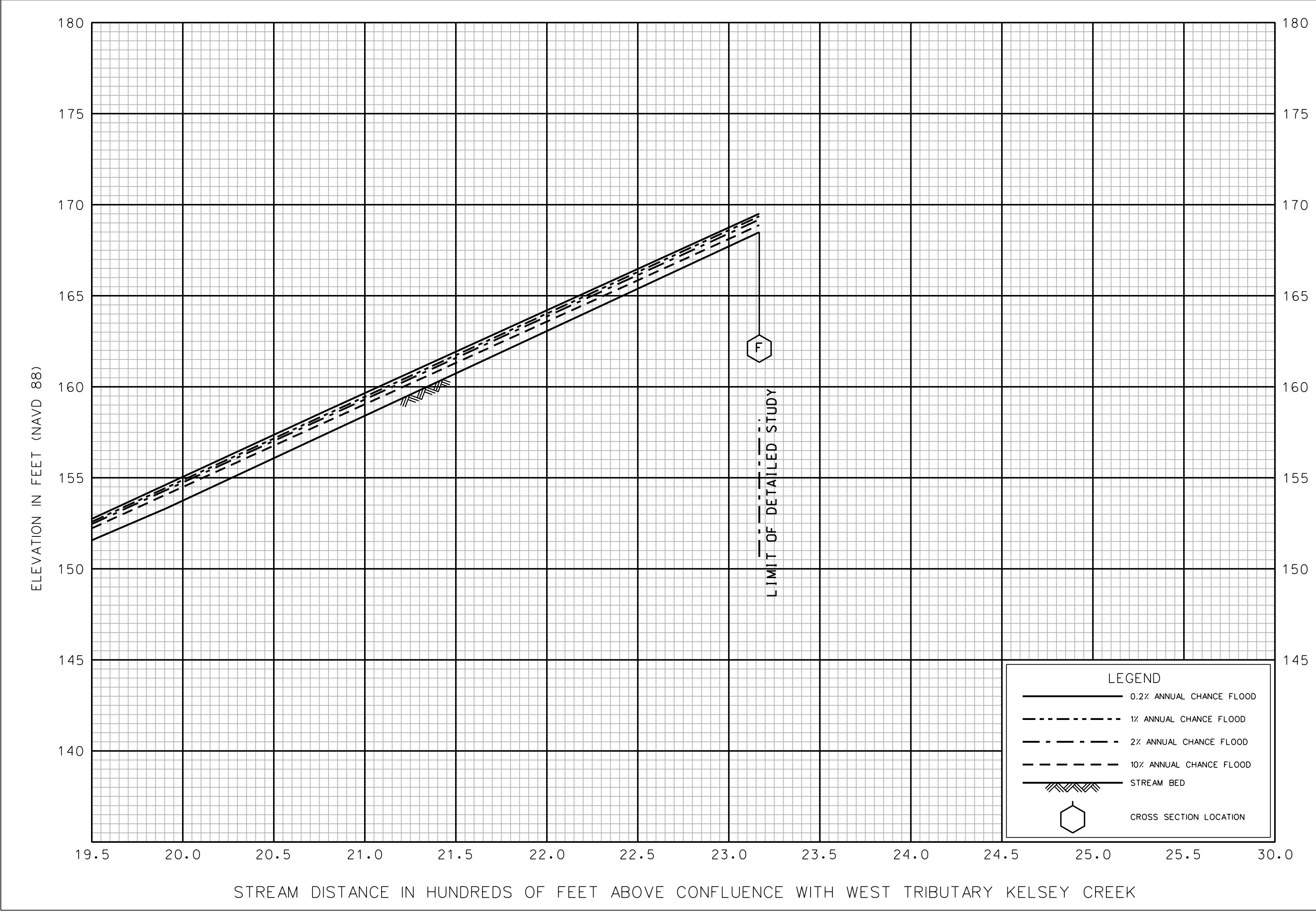


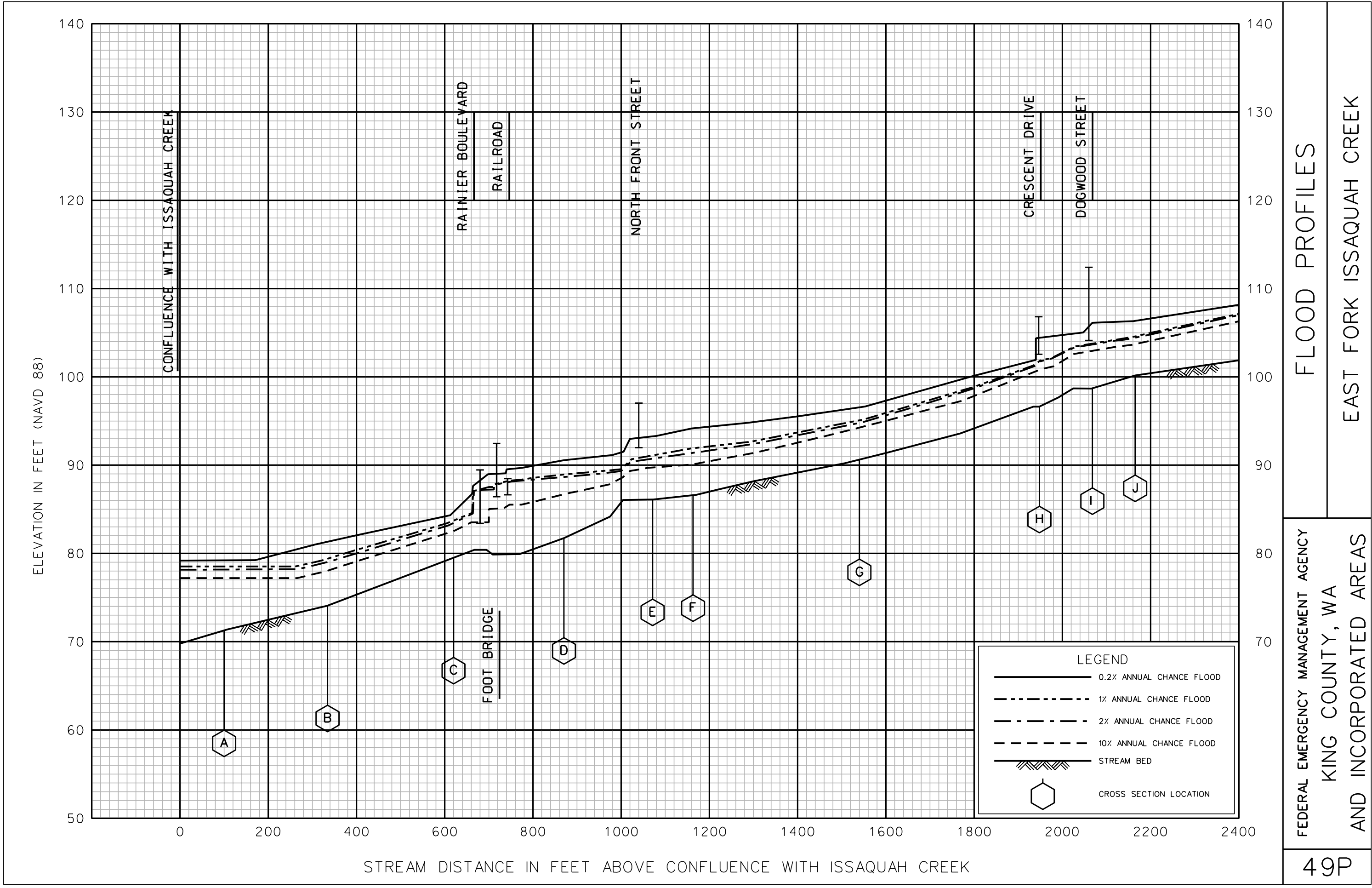








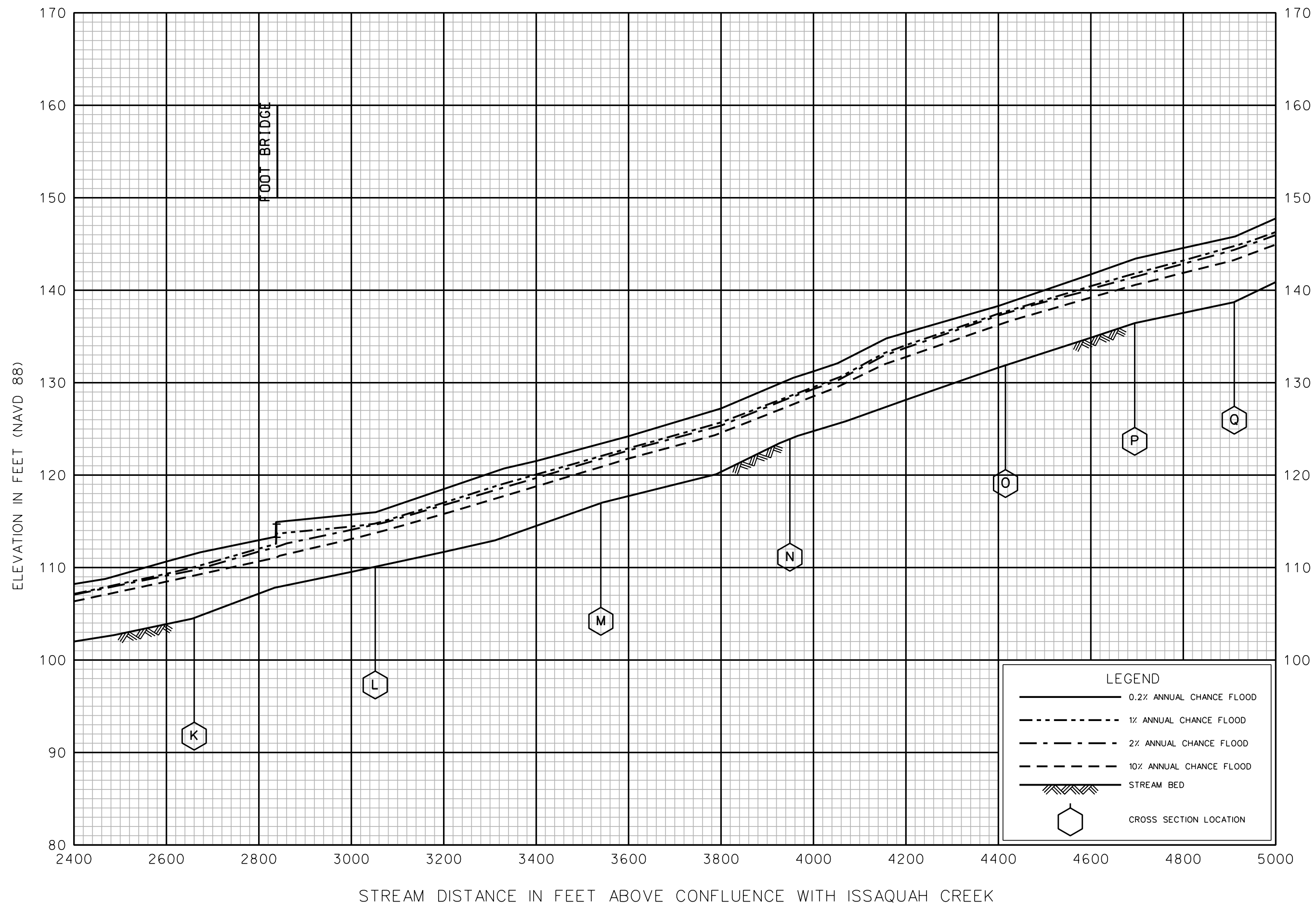




FLOOD PROFILES

EAST FORK ISSAQUAH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

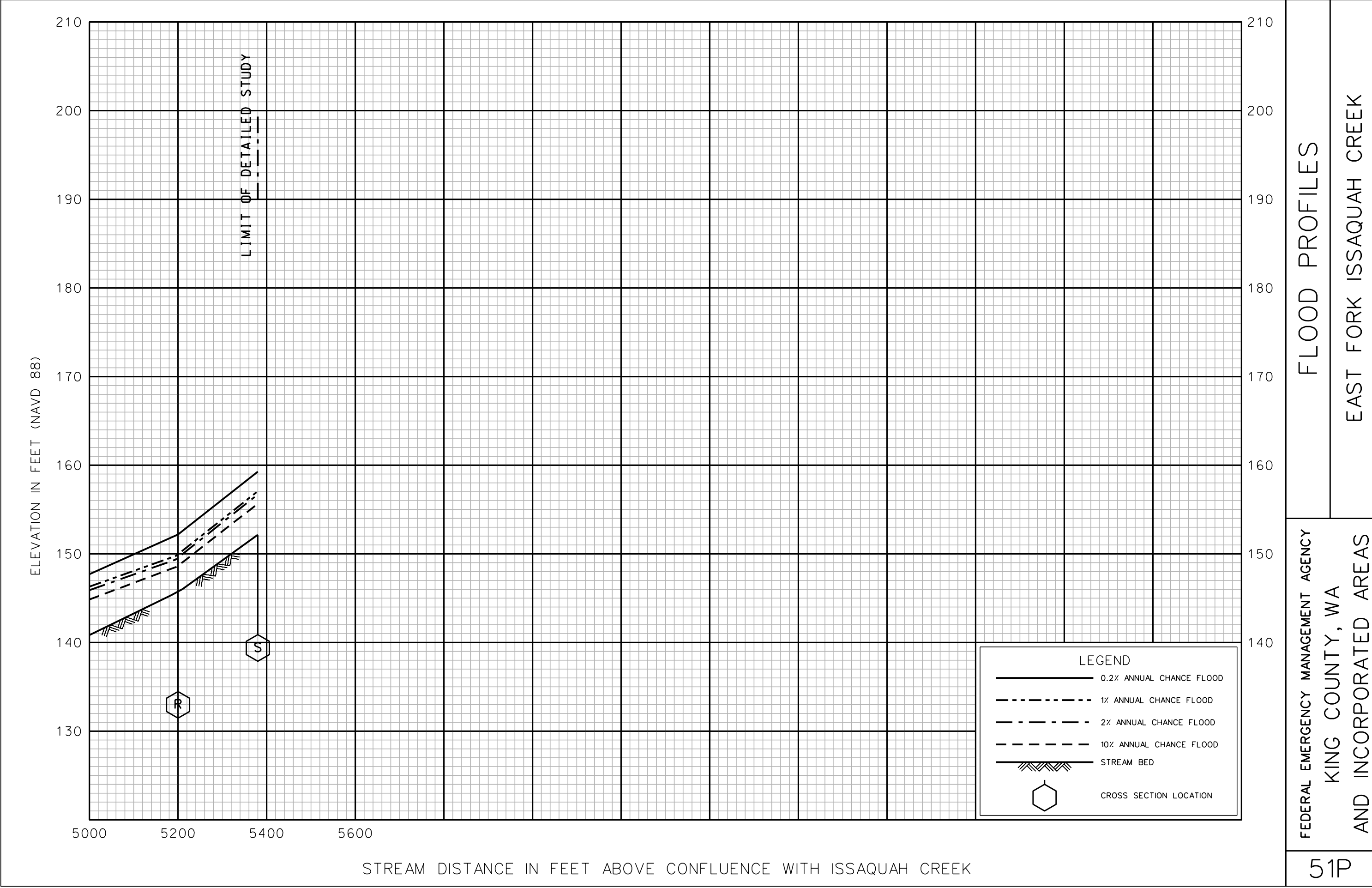


---

# FLOOD PROFILES

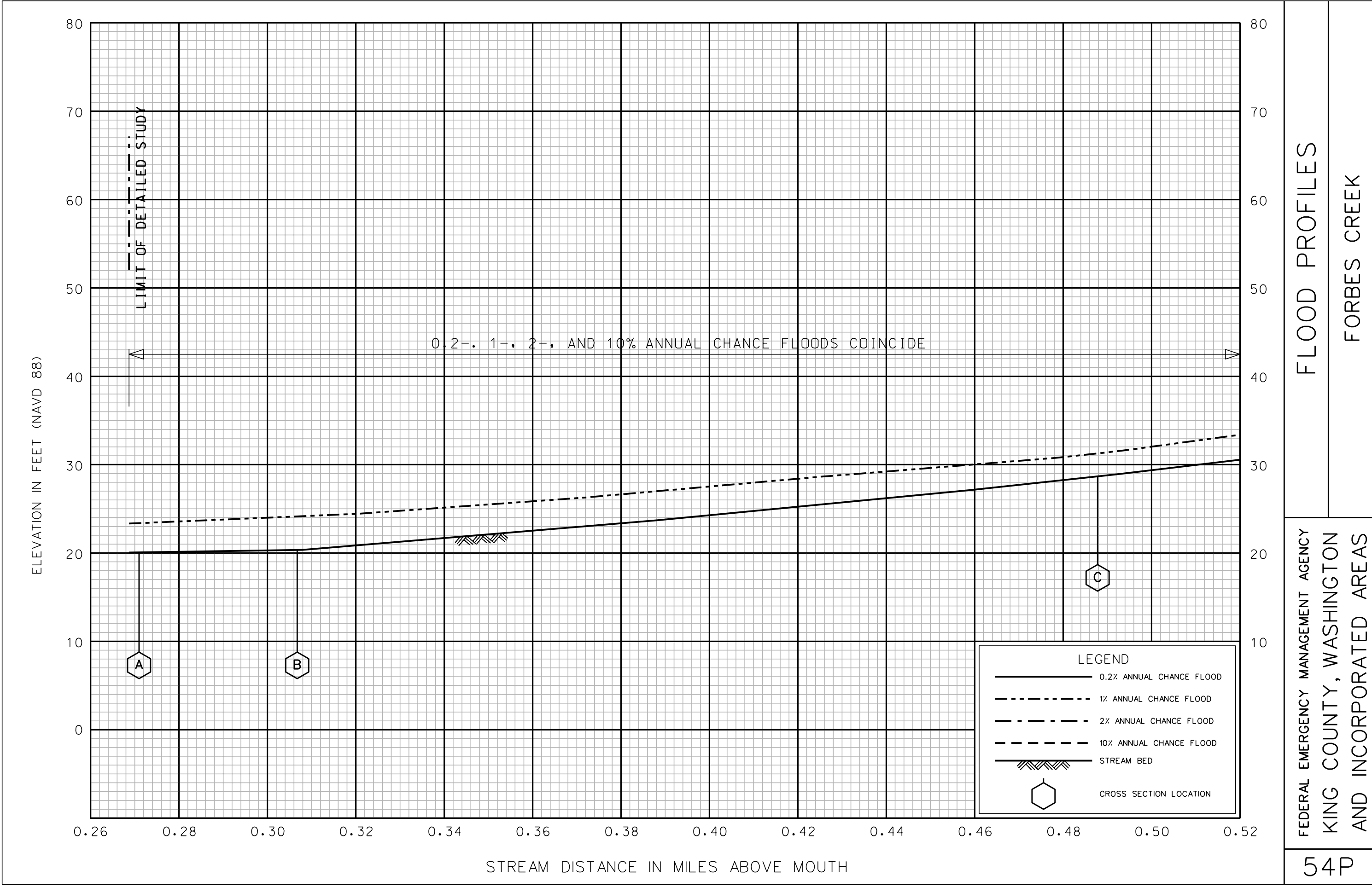
EAST FORK ISSAQUAH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS





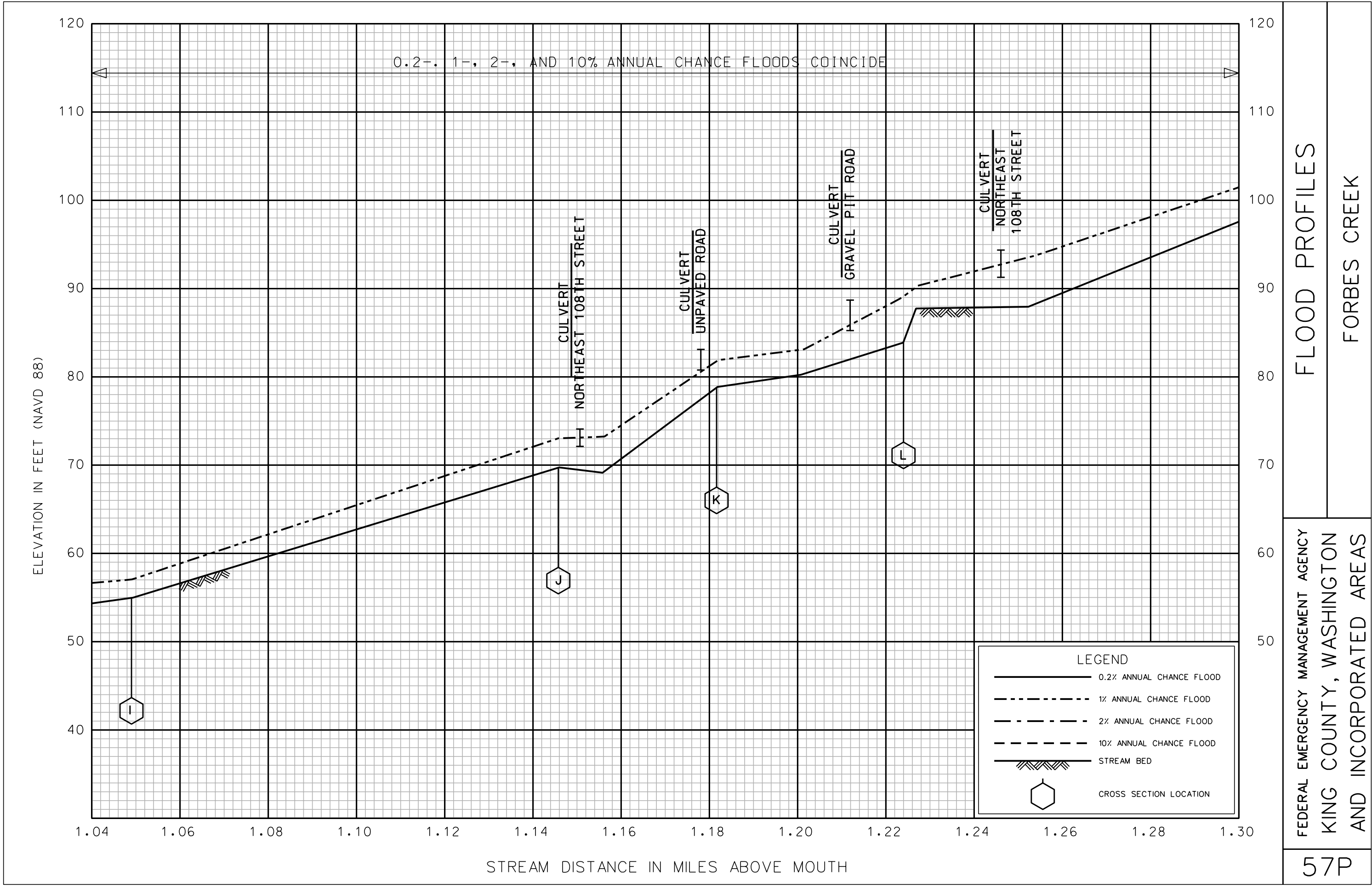


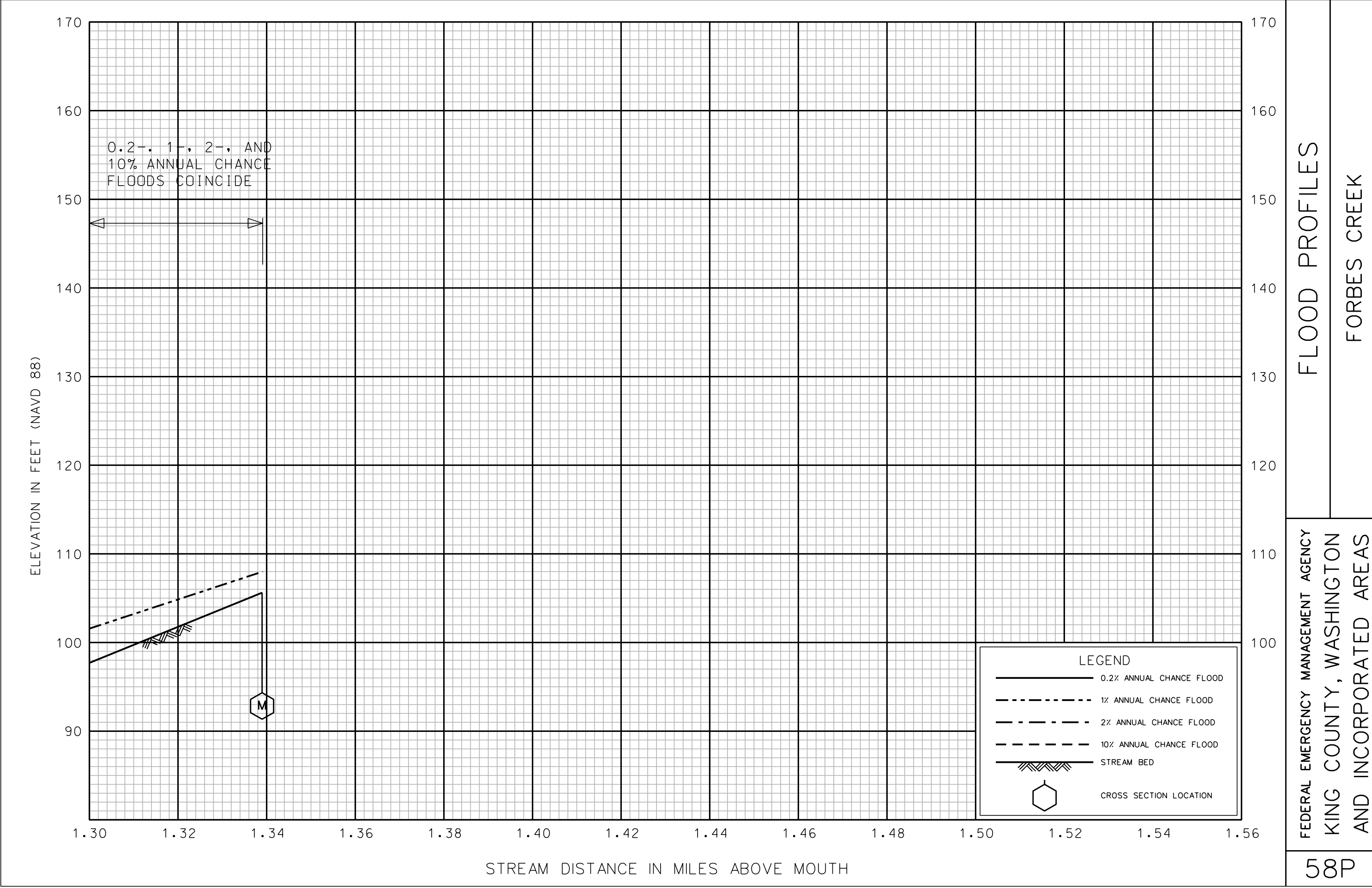








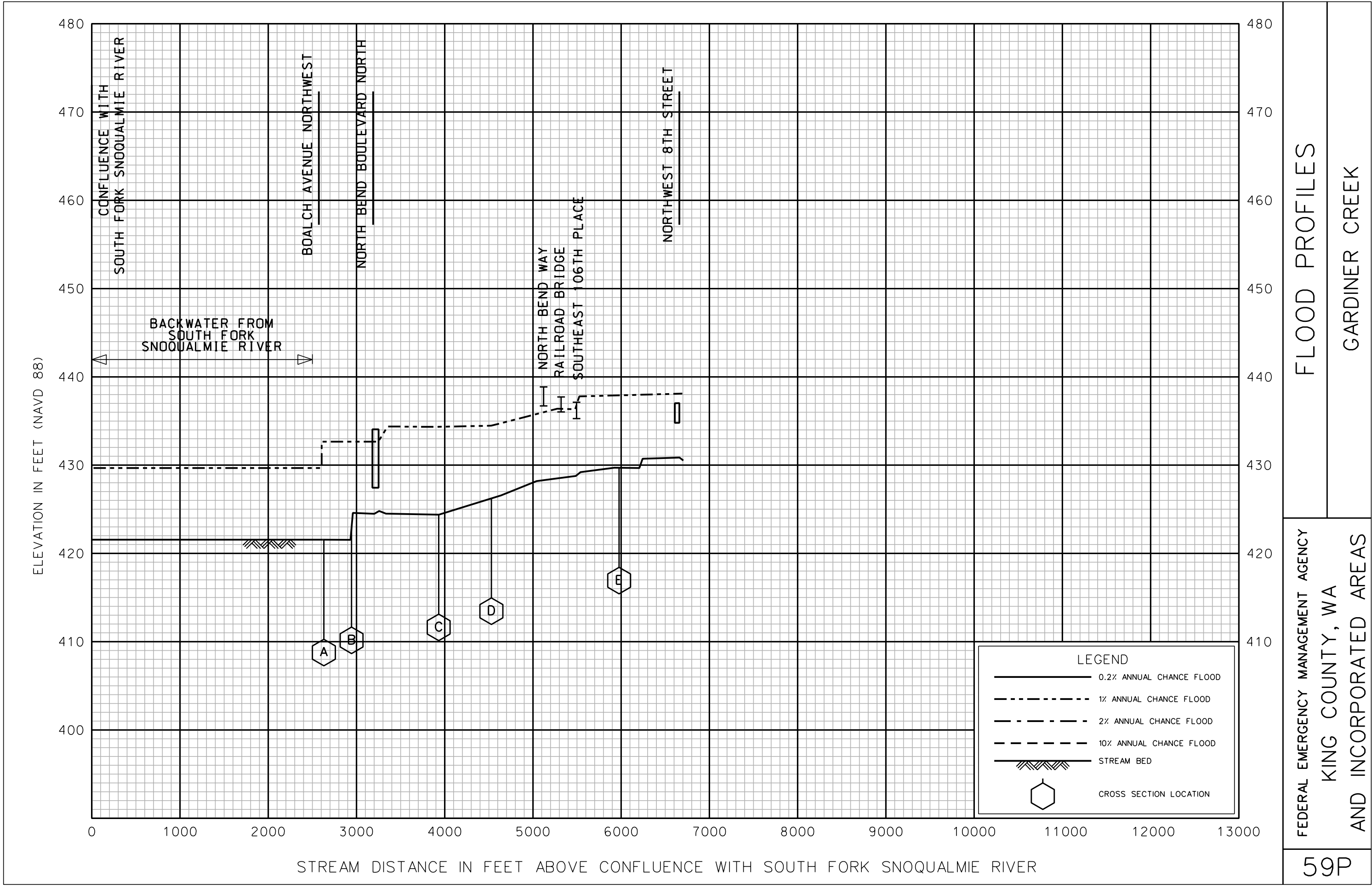




FLOOD PROFILES

FORBES CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WASHINGTON  
AND INCORPORATED AREAS



FLOOD PROFILES

GARDINER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
KING COUNTY, WA  
AND INCORPORATED AREAS

